

## *Frontier Settlement and Economy in the Byzantine East*

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**T**HIS WORK EXAMINES the archaeological evidence for settlement and agriculture on the eastern frontiers of Byzantium from circa 300–1000, with a particular focus on the seventh to eleventh centuries.<sup>1</sup> Archaeology offers substantial promise to inform on the specific issues of settlement and land use, and these in turn lend considerable insight into the nature of frontier life and society around the time of the first Muslim conquests of the seventh century and throughout medieval Byzantium. One of the major pre-occupations of historians and archaeologists of Byzantium today is the economic condition of the empire around the time of the first Muslim conquests, when the world of late antiquity crumbled and a new, medieval world emerged from the wreckage of many ancient structures. A clear picture of the land is vital to any understanding of the changes attending the arrival of the Byzantine dark ages and the subsequent revival of Byzantine fortunes in the ninth and tenth centuries. Agricultural pursuits formed the livelihood of the vast majority of the population and cities most often depended for their survival on their own immediate agricultural landscapes.

Material data that inform us of the kinds of farming and animal husbandry in the Byzantine East also bear implications for Byzantine society at large. They provide evidence for the presence or lack of nomadic elements, the potential for substantial settled populations, the persistence and character of sedentary communities, and of the network of social relations. The role of archaeology in further illuminating the nature and function of the middle Byzantine elite remains largely untapped, and although there is no space to examine the paramount question of the expansion of aristocratic power, much of the picture rendered below is predicated on a belief that the eastern medieval aristocracy asserted great influence in the countryside.

The eastern borderlands of Byzantium were not static. The *limes* that the Roman Empire created piecemeal over long centuries of experience in the East collapsed beyond retrieval in the seventh century, first in the face of the Sasanian Persians and then under the

<sup>1</sup> In light of the theme of the Spring Symposium at which I first read the core of this paper, now considerably adapted, I have focused primarily on Cappadocia and the borders of Anatolia, namely the Tigris and upper Euphrates, although I stray into Syria

and parts farther south for the sake of comparison. Due to space considerations, it is impossible to provide here a thorough review of the Roman-Byzantine *limes*; thus, while I have paid considerable attention to Antioch and the region of Chalcis, a future

study will address other important excavated sites, such as Dara, Apamea (Afamia), Barbalissos (Meskene), Sergiopolis (Resafa), and Zenobia (Halabiyya).

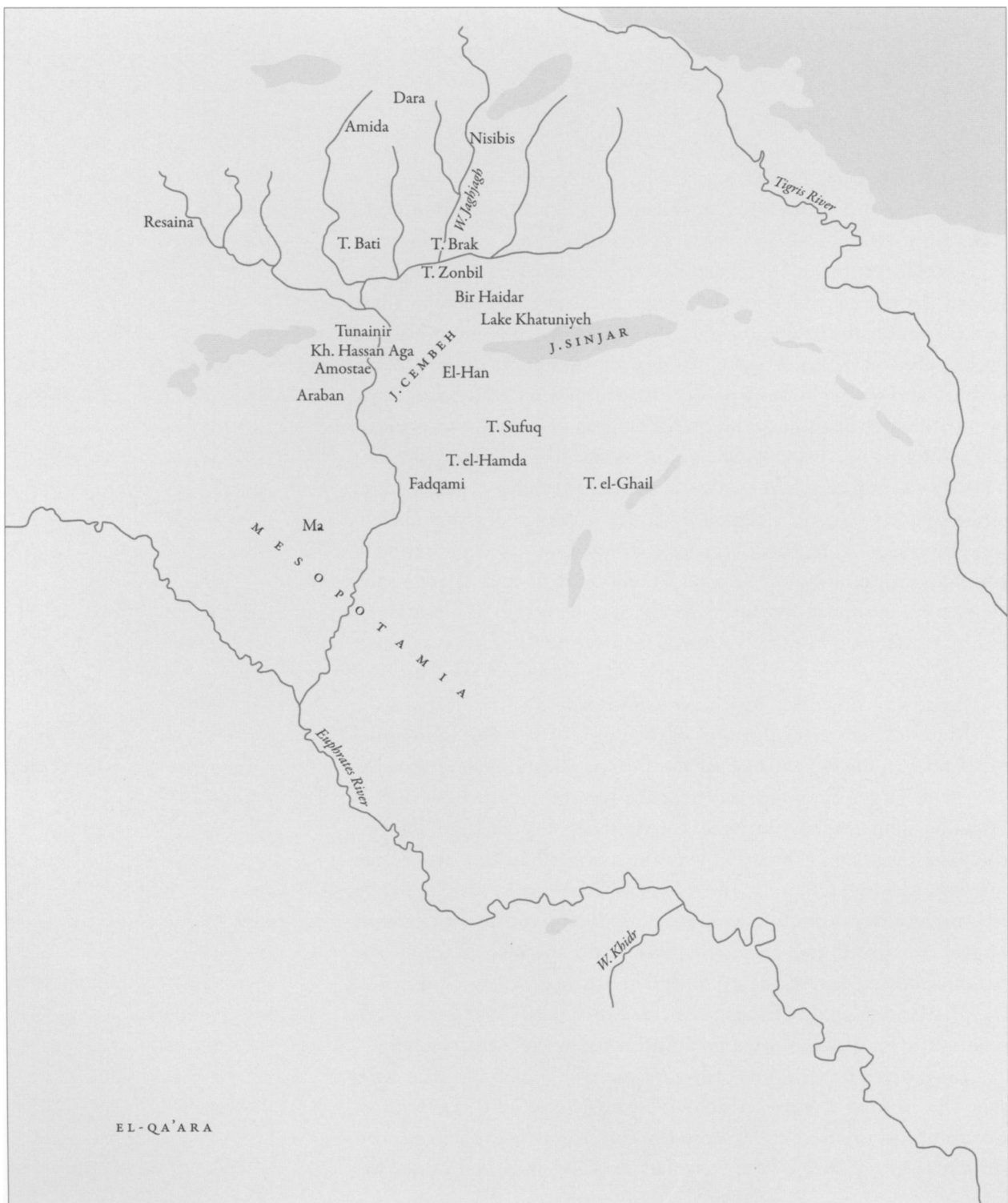
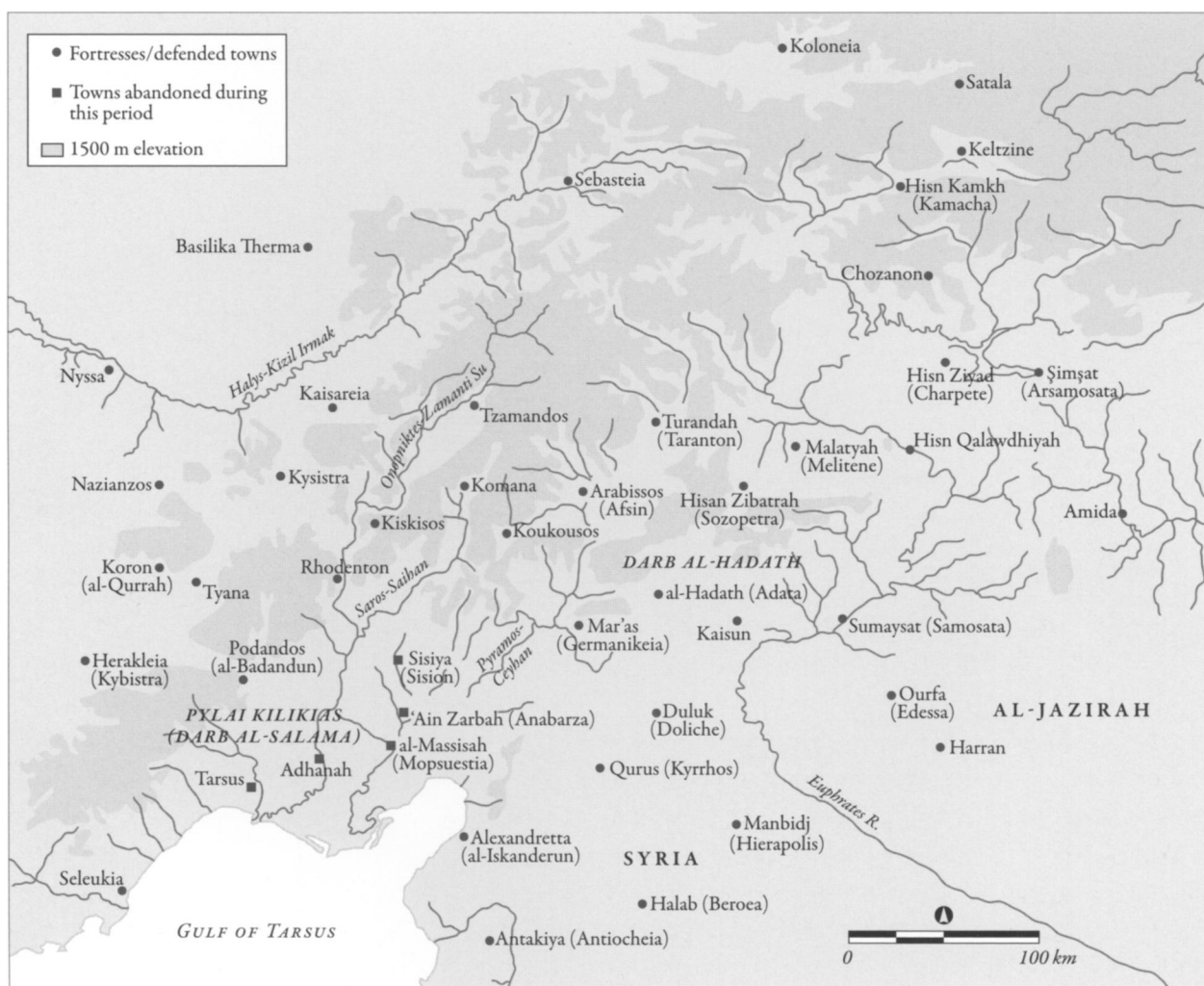


Fig. 1 The Tigris and Khabur on the eastern frontier. Reprinted from D. Kennedy, *Rome's Desert Frontier from the Air* (London, 1990), fig. 9b.



Fig. 2 The Orontes Valley and Syrian steppe along the eastern frontier. Reprinted from Kennedy, *Desert Frontier*, fig. 9a.



onslaught of the Muslims. We must speak of a permeable frontier zone, with cities forming the primary nodes of political control, the vertebrae of the Byzantine backbone. Once these cities surrendered, the huge areas of territory they controlled presented little obstacle to conquest. The first earlier frontier (figs. 1 and 2) stretched from the Caucasus to Syria, centered on the riparian districts of the Euphrates and Tigris and their tributaries, and extending as far as the region of Antioch, east of which the frontier melted into a blur of steppe and desert. From the fourth to the seventh centuries, the limits of the early frontier were on numerous occasions renegotiated, first by the expansion of settled life to its greatest extent since the Bronze Age, and second by the numerous episodes of warfare that interrupted the generally prevailing political calm. The second frontier was born from the failure of the first: the Muslims presented an almost irresistible tide of invasion, which broke itself only on the barriers of the Taurus and Anti-Taurus mountains, and thus the Romans found themselves thrown back to the old frontier that had prevailed in the

Fig. 3 The medieval frontier zone.  
Reprinted from J. Haldon, *Byzantium in the Seventh Century* (Cambridge, 1990), map 5.



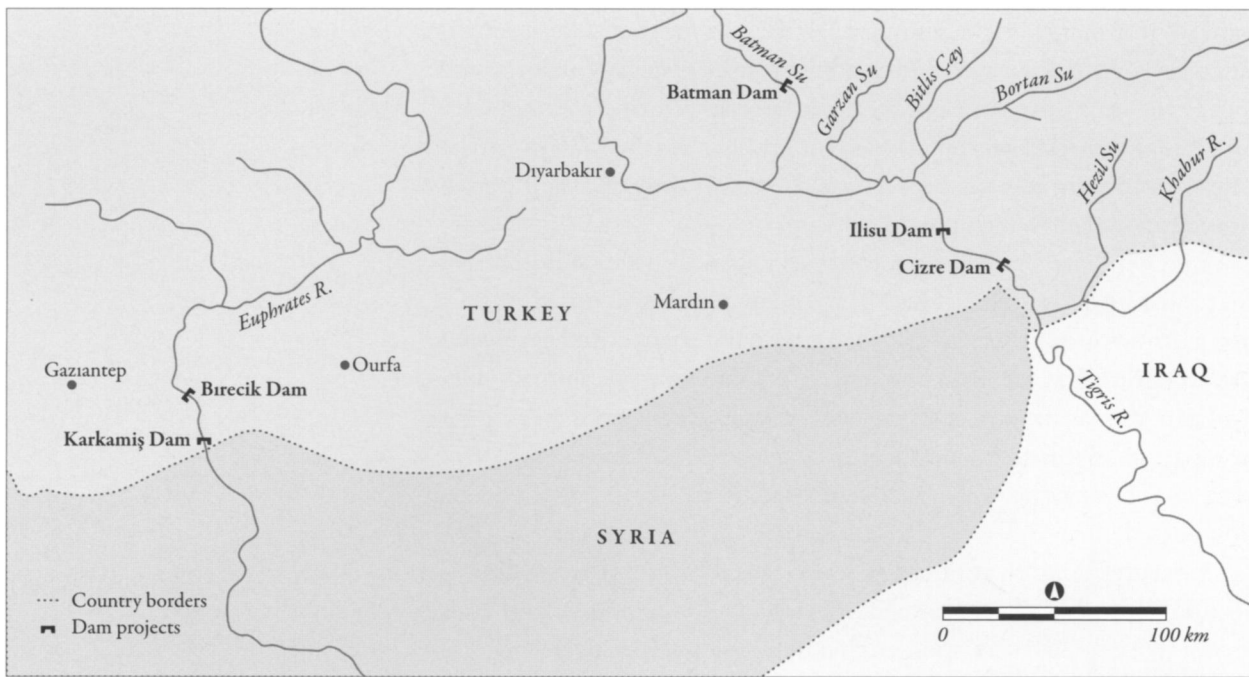


Fig. 4 Upper Euphrates and Tigris region of the Byzantine frontier. Reprinted from G. Algaze et al., "The Tigris-Euphrates Project," fig. 1.

days of Vespasian. Following the Muslim conquest of the Byzantine East, Cappadocia, a giant upland territory that dipped one foot in the Euphrates and another in the salt marshes of the Toz Gölü, once again formed the heart of Roman resistance to an eastern enemy.

Around 860 the Byzantine-Muslim frontier region (fig. 3) lay along a line running between Sebasteia and Tephrike in the north and the Cilician Gates and headwaters of the Calycadnus River (modern Goksu Nehri) in the south. By the eleventh century the offensive wars of the Byzantines had advanced their territory about 150 km east of Trebizond with a prominent salient around Lake Van in Vaspurakan, and thence southwest to the Orontes valley. This region is archaeologically interesting in part due to recent fieldwork conducted in the wake of Turkish hydraulic projects, but also because this rugged landscape formed the interface between Byzantines and Muslims for centuries and yet remained an inhabited countryside where agrarian and pastoral life continued. An investigation of the core elements of this rural activity comprises the present work.

The Tigris valley (fig. 4) lay at the limits of the Byzantine world. Both in the Early Byzantine period (4th–7th centuries) and the middle Byzantine period (8th–11th centuries), the Tigris formed a barrier rarely encroached upon by Byzantine political control. It is not possible here to examine the whole corpus of survey work from the Tigris-Euphrates corridor, and so I limit discussion to a number of illustrative projects that record data of interest for Byzantium. Before I proceed, it is important to note some of the promise and problems in the use of archaeological survey data in reconstructing

past environments and economies. Firstly, survey methods vary considerably, and those that yield the best results generally incorporate local excavation, which permits more precise ceramic chronologies. Since many of the survey efforts undertaken in the valleys of the Tigris and Euphrates were forerunners of dam projects, such excavation has not always been possible.

Likewise, survey-sampling strategies naturally have built-in biases that must be considered in handling the material, and not all surveyors' methods are entirely clear. No matter what the method employed, site recognition is always a challenge. In some cases, geomorphological changes may obscure sites; in others, later use may obscure earlier occupation. Because knowledge of coarsewares is often difficult to obtain, they may be wrongly assigned to other, often early, occupation periods.

Interpretation of population levels based on numbers of sites is also problematic, as many archaeologists have recognized, and thus the total occupied landscape area that belongs to a given period should also form the component of any rigorous analysis. Geographical coverage is another concern: the data considered herein come from riparian districts, which may or may not typify other areas of the ancient and medieval Levant. Despite these considerable challenges, as evidence continues to mount from a variety of surveys that differ in aims, scope, and methods, we can be confident that we have obtained a broadly coherent picture of settlement and land exploitation for the Byzantine and Early Islamic periods. Nor should we be surprised that regional variation is sometimes considerable, given the diversity of geographical and political conditions that prevailed from the seventh to the eleventh centuries. These and other challenges will be met and overcome as surveys continue to grow in number and sophistication.<sup>2</sup>

### *The Tigris Valley*

From 1988 to 1990, Guillermo Algaze and his team worked along the course of the upper Tigris where it is joined by several tributaries, notably the Batman Su River (Byzantine Nymphaios), the Bohtan Su (Byzantine Zirma), and the Garzan Su. In addition Algaze explored the region of the Tigris itself around the modern town of Cizre, all in preparation for portions of the Güneydoğu Anadolu Projesi (GAP), the massive hydroelectric and irrigation scheme that encompasses a sizeable portion of eastern Turkey. After decades of construction and \$32 billion invested, the face of the Tigris and Euphrates and many of their tributaries will never be the same. Unfortunately, Algaze's work has been too cursory to provide a clear sense of the archaeology of the affected area. The published material has some of the characteristics

<sup>2</sup> For references to the present state of survey in Mesopotamia and for the problems but overall utility of archaeological survey data, see T. Wilkinson, "Regional Approaches to Mesopotamian Archaeology: The Contribution of Archaeological Surveys," *Journal of Archaeological Research* 8 (2000): 220–67.

of emergency work, with coverage necessarily determined by the areas that the floodwaters from dams would affect most quickly.

In the late Roman/early Byzantine period, the Batman Su formed part of the hinterland of Martyropolis (modern Silvan). It is thus striking that the archaeological data show an intensification of settlement and land use, corroborating the textual evidence that portrays a flourishing region. Around Martyropolis the low river terrace lies only a few meters above the waterline and is therefore easily exploited by means of canals. It thus required minimal investment in lifting gear such as irrigating waterwheels (*noria*) or counterweighted buckets (*shaduf*) that were available to the late antique inhabitants. As the Batman Su approaches the Tigris, the low terrace broadens and presents a wide band of easily exploited, rich alluvium.

Via its fortification program, witnessed in the writings of Prokopios in the sixth century and drawing on the remains of fortifications of the medieval era, the Byzantine state made efforts to secure these riparian farmlands and to protect the crossing points that served as routes of trade and invasion.<sup>3</sup> On the west bank of the Batman Su at Semrah Tepe are found the remains of a fort that controlled the crossing nearby at Malabadi. The finds from the immediate area of Semrah Tepe included a coin of the emperor Phocas (602–10), as well as early Byzantine and a small amount of medieval Byzantine and Islamic glazed wares, perhaps indicating that the Byzantines returned to the spot after the emir of Martyropolis finally submitted to Byzantine authority around 976. Settlement apparently declined after the Muslim conquests and only later, during the period of Artukid/Seljuk control (11th–14th centuries), did settlement again peak. At that time the river valley no longer belonged to a contentious frontier between two rival empires.<sup>4</sup>

Farther east along the frontier zone, in the Garzan Su valley, many sites yielded pottery of the late Roman/early Byzantine period. Like the Batman Su region, the Garzan Su region witnessed heavy settlement during the fourth through seventh centuries. Farther downstream the Bohtan Su valley, the last of the surveyed tributaries of the left bank of the Tigris, provided few traces of the brown and red wash ceramics that characterize late Roman/early Byzantine occupation. This is perhaps due to the region's situation: the Bohtan Su district formed part of the hinterland of Si'irt, initially part of the

3 Prokopios, *Buildings*, 2.2.1–21; 2.9.18–20; 2.4.3; 3.2.11–14; trans. H. B. Dewing (Cambridge, Mass, 1971).  
4 G. Algaze, "A New Frontier: First Results of the Tigris-Euphrates Archaeological Reconnaissance Project,

1988," *JNES* 48,4 (1989): 241–81; G. Algaze, R. Breuninger, C. Lightfoot, and M. Rosenberg, "The Tigris-Euphrates Archaeological Reconnaissance Project: A Preliminary Report of the 1989–1990 Seasons," *Anatolica* 17 (1991): 172–240; G.

Algaze, R. Breuninger, and J. Knudstad, "The Tigris-Euphrates Archaeological Reconnaissance Project: Final Report of the Birecik and Carchemish Dam Survey Areas," *Anatolica* 20 (1994): 1–96.

kingdom of Armenia, and then Persarmenia. But the absence of late antique pottery from the valley is somewhat perplexing, since there is clear evidence of occupation at the fortress of Çattepe at the confluence of the Tigris and the Bohtan Su.

In the main, Algaze's survey around the plain of Cizre recorded tell sites, with the result that the late Roman/early Byzantine period, which is typically characterized in upper Mesopotamia by small, dispersed settlement, is underrepresented. The survey did record a major late Roman/early Byzantine fortress and associated settlement at Eski Hendek on the west bank of the Tigris, 14 km north of the town of Cizre. Eski Hendek was probably the late Roman fortress city of Bezabde, mentioned by Ammianus Marcellinus.<sup>5</sup> The site reminds us of the militarized qualities of the Tigris region, which frequently witnessed Persian and Byzantine raids and invasion. Despite this, settlement does seem to have been fairly lively over much of the area under Roman/Byzantine control.<sup>6</sup>

### *Between the Rivers: The Khabur-Balikh Watershed*

A number of archaeological projects have produced an impressive chronicle of human occupation in the river zones where settled communities and steppe land meet.

During late antiquity, the valley of the Khabur possessed two Byzantine urban hubs. In the north lay Theodosiopolis (Ras el-Ayn/Resaina), in the south, Circesium. These two cities bracket, as it were, the length of the river. Because the length of the Khabur valley was irrigated throughout late antiquity, it is likely that another, as yet unknown urban center developed in the middle reaches of the river plain. This site is probably obscured by Islamic development.<sup>7</sup>

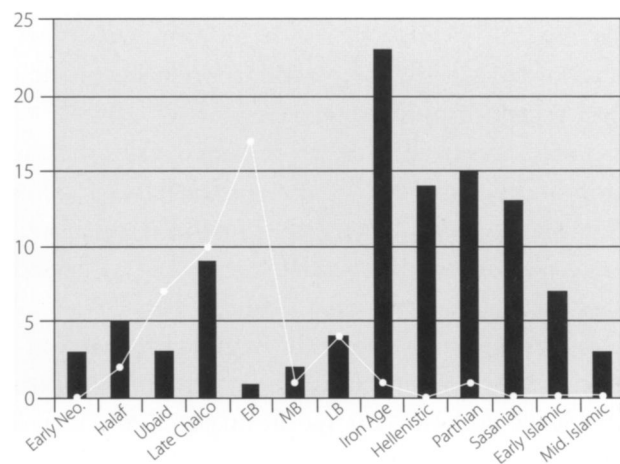
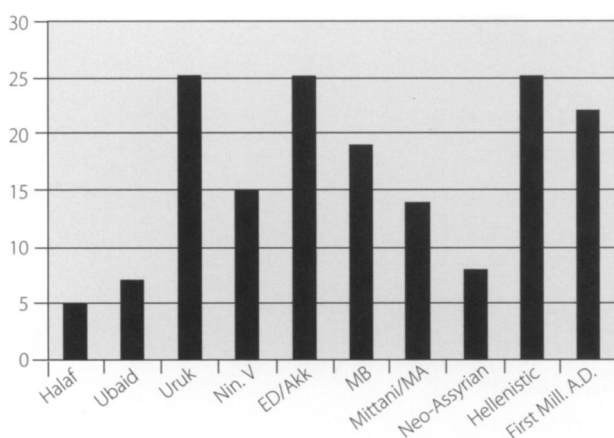
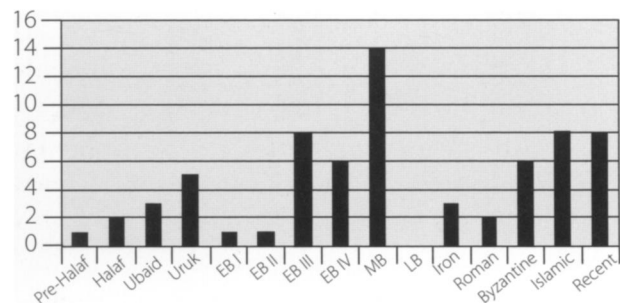
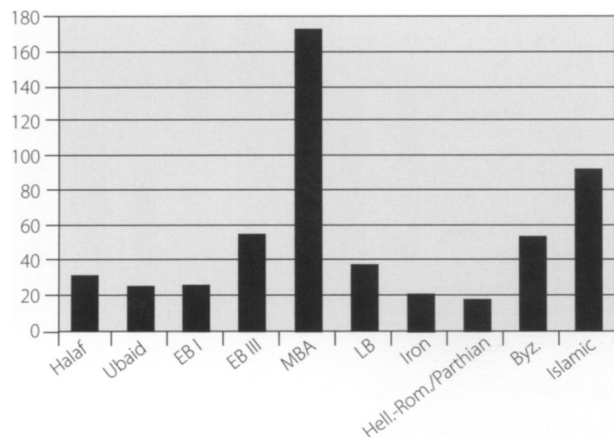
In the 1970s Deiderik Meijer examined the region around Qamishli in Syria along the course of the Djaghdjagh (ancient Mygdonius) River, a tributary of the Khabur. The surveyed regions of the Djaghdjagh valley and the adjacent plains formed part of the hinterland of Nisibis, and after 363 portions of the covered area probably remained in Byzantine hands. After 507 this segment of territory was governed from Anastasiopolis/Dara. Meijer's work was extensive; more than 300 sites were recorded. By my tally, 53 sites belong to the Early Byzantine period, compared with 18 categorized broadly

5 Ammianus Marcellinus, *Rerum gestarum libri qui supersunt*, 20.7.1; 20.11.6; 21.13.1, ed. W. Seyfarth (Leipzig, 1978).

6 (Bohtan Su/Garzan Su/Cizre) "The Tigris-Euphrates Archaeological Reconnaissance Project," 187–99; (Eski Hendek-Fenik/Bezabde) C. Lightfoot,

"The Site of Roman Bezabde," in S. Mitchell, ed., *Armies and Frontiers in Roman and Byzantine Anatolia* (Oxford, 1983), 189–204.

7 J. Lauffray and W. Van Liere, "Nouvelle prospection archéologique dans la Haute-Jézireh syrienne," *AArchArSyr* 4–5 (1954): 129–48.



by Meijer into “Hellenistic-Parthian-Roman” and 93 of the “Islamic Period” (fig. 5). To the west of this zone, the Leilan Survey (fig. 6) found that evidence for the Byzantine period was triple that of the Roman period and continued to increase in the Islamic period. But the survey sample is small and so should not be overemphasized.<sup>8</sup>

The Tell Brak survey (fig. 7) did not periodize early Byzantine and Islamic material, instead referring to these later settlement phases under the general rubric of “First Millennium.” One can therefore gain only an impressionistic view of broad continuity in settlement from the Hellenistic era through the Muslim period. Like the study around Tell Brak, the Tell Beydar survey (fig. 8) data produce a similar image of settlement stability, though with some visible variations. Using a combination of remote sensing and surface reconnaissance over two seasons, Tony Wilkinson’s Tell Beydar survey recorded 82 sites. After the treaty of 363, this landscape lay in the midst of the contested area between the fortress-

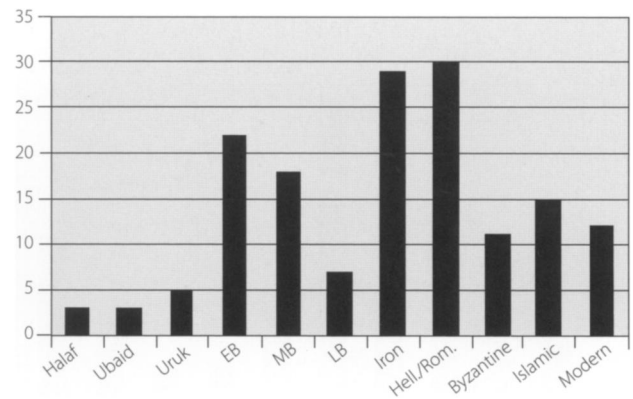
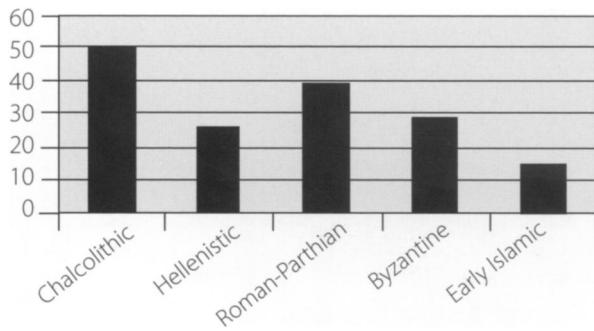
Fig. 5 Northeast Syria survey

Fig. 6 Leilan survey

Fig. 7 Tell Brak survey

Fig. 8 Tell Beydar survey. After T. Wilkinson, “Tell Beydar Survey, 1998–99 Annual Report,” <http://oi.uchicago.edu/research/pubs/ar/98-99/beydar.html>.

<sup>8</sup> D. Meijer, *A Survey in Northeastern Syria* (Istanbul, 1986).



city of Theodosiopolis (Ras el-'Ayn) and Nisibis (Nusaybin). The surveyors recovered evidence of strong Hellenistic, Parthian, and Byzantine-Sasanian period habitation, the latter despite the position of this landscape on the boundaries of the empires between Nisibis and Byzantine territory.<sup>9</sup>

Changes in the pattern of human exploitation of the landscape did occur, however. From the Hellenistic through Byzantine/Sasanian periods, aggregate site numbers declined and larger sites gave way to smaller settlements. This dispersed habitation and lack of large central urban centers parallel the above-noted situation that prevailed along the Tigris. The material from Tell Beydar underscores the need for surveys in Mesopotamia to include low-level sites in their methodologies: thirteen late antique sites ("Sasanian") were found, but none of these were sited on tells. The area continued to be fairly densely settled during the Early Islamic period, but not as actively as in previous ages.<sup>10</sup>

From 1974 to 1978, Bertille Lyonnet collected data from the Khabur, where 29 Byzantine sites (14 of these are in question) were found and 14 sites of Umayyad-Abbāsid date (fig. 9). This fieldwork, focused on tells, like most from the Khabur, was led by archaeologists most interested in earlier periods, but the evidence we glean from them is nonetheless valuable. Jean-Yves Monchambert's work focused on the middle Khabur valley, where 30 sites belonged to the Hellenistic/Roman period, 11 to the (early) Byzantine, and 15 to the Islamic period (fig. 10). In the lower stretches of the river

Fig. 9 Khabur survey (Upper Khabur). After B. Lyonnet, "Settlement Pattern in the Upper Khabur."

Fig. 10 Middle Khabur Valley

<sup>9</sup> J. Eidem and D. Warburton, "In the Land of Nagat: A Survey around Tell Brak," *Iraq* 58 (1996): 51-64.

<sup>10</sup> (Tell Beydar) T. Wilkinson, "Archaeological Survey of the Tell Beydar Region, Syria, 1997: A Preliminary Report," *Subartu* 6 (2001): 1-37; Wilkinson, "Tell Beydar Survey: 1998-99 Annual Report," <http://oi.uchicago.edu/research/pubs/ar/98-99/beydar.html>.



in the territory of Circesium, preliminary data from surveys once more suggest that, beginning in the Hellenistic-Parthian periods, settlement was more dispersed. Site size also decreased over periods predating the Hellenistic, when tells dominated the spatial distribution of the human-built environment. This trend, with agriculturists fanning out along the length of the valley in hamlets and villages on the plain, persisted with apparently little interruption through the Roman, early Byzantine, and early Islamic periods. The latter was apparently particularly well settled (fig. 11).<sup>11</sup>

The next major tributary of the Euphrates west of the Khabur is the Balikh (fig. 2). Excavation and survey work in this region has focused on periods prior to and after Byzantine occupation, the latter notably on the 'Abbāsid site of Madīnat al-Fār and other Islamic sites in the valley. According to Karin Bartl's Balikh valley survey, the period from the first century BCE to thirteenth century CE marked a long phase of intensive settlement. The densest period of occupation was the Early Islamic era, to which belongs the new town of Madīnat al-Fār, a large urban center (more than 100 ha in extent). The precise range of occupation at the site is uncertain. While the excavators identify the town with the Umayyad foundation of Hisn Maslama known from literary sources, the stratified finds as published are 'Abbāsid in date.<sup>12</sup> Future work will almost certainly confirm the earlier origin of Madīnat al-Fār. It would be unsurprising, in fact, if the site predates the Islamic conquests altogether. In other regions of the steppe lands in the transitional zone between the settled lands and the steppe, other sites bear striking testimony to Byzantine period vitality, including important Balikh valley sites, Tell Sheikh

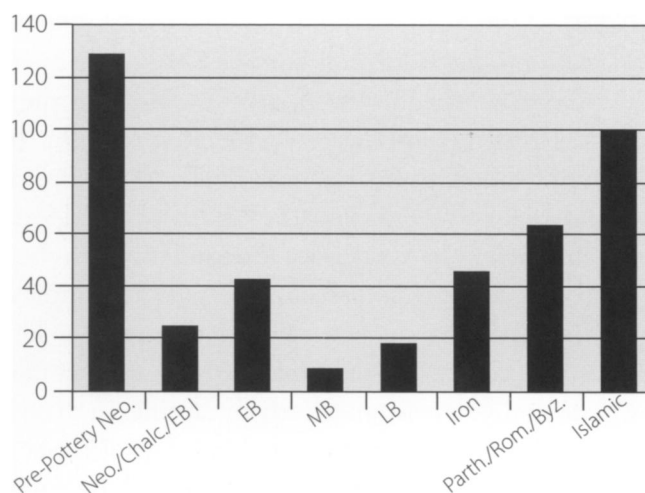


Fig. 11 Lower Khabur Valley

<sup>11</sup> (Upper Khabur) B. Lyonnet, "Settlement Pattern in the Upper Khabur (N.E. Syria), from the Achaemenids to the 'Abbasid Period: Methods and Preliminary Results from a Survey," in *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period*, ed. K. Bartl and S. R. Hauser (Berlin, 1996), 349–61; (Middle Khabur) J.-Y. Monchambert, "Le Moyen Khabour: Prospection préliminaire à la construction d'un barrage," *AArchArSyr* 33 (1983): 233–

37; (Lower Khabur) J. Ergenzinger, W. Frey, H. Kühne, and H. Kuschner, "The Reconstruction of Environment, Irrigation and Development of Settlement on the Jābūr in North-East Syria," in *Conceptual Issues in Environmental Archaeology*, ed. J. Bintliff, D. Davidson, and E. Grant (Edinburgh, 1988), 122, fig.8; see also W. Röllig and H. Kühne, "The Lower Khabur: A Preliminary Report on a Survey Conducted by the Tübinger Atlas des Vorderen Orients in 1975," *AArchArSyr* 32 (1977/1978): 115–40;

W. Röllig and H. Kühne, "Lower Khabur: Second Preliminary Report on a Survey in 1977," *AArchArSyr* 33 (1983): 187–99; most recently (unseen): H. Kühn, *Magdalu/Magdala: Tall Šeh Hamad von der postassyrischen Zeit bis zur römischen Kaiserzeit* (Berlin, 2005).

<sup>12</sup> (Madīnat al-Fār/Hisn Maslama) K. Bartl, "The Balikh Valley, Northern Syria, during the Islamic Period: Remarks Concerning the Historical Topography," *Berytus* 41 (1993–1994): 29–38.

Hasan, 40 km north of Raqqa, or Tell Sheikh-Hamad, an Assyrian foundation (Dūr Katlimmu) on the Khabur that persisted through the Byzantine period. Settlements elsewhere in the steppe zone in the desert or transitional areas, like Androna, in the steppe lands south of Chalcis, or Euaria, near Emesa, grew considerably.<sup>13</sup>

Bartl's survey work along the Balikh recorded 80 sites with traces of occupation in the early Islamic period (mid 8th–beginning of 10th century), 55 of which were securely dated to this time and 25 are probable. Twenty-three sites are securely dated to the late Roman/early Byzantine Period (4th–7th centuries) and another 14 sites are labeled as “potentially” late Roman/early Byzantine. In that the early Islamic period is fairly poorly represented in many of the surveys discussed from the Tigris and the lands between it and the Euphrates, the finds along the Balikh present an interesting anomaly.

There are several possible reasons for these findings. The first, and perhaps most likely, is that some material classified in other surveys as “Byzantine” belongs to the Early Islamic era. A second possibility is site migration, with people who lived in the more exposed frontier regions of the upper Tigris and Euphrates moving farther inland to the Balikh, perhaps either voluntarily or as part of an organized relocation initiated by the caliphal authorities. Such movements of the conquered populations were not uncommon within the Umayyad state. Settlements were expanded or newly founded in the Euphrates valley. The Umayyads and early ʿAbbāsids paid particular attention to the region of the middle Euphrates, because Hishām b. ʿAbd al-Malik (d. 743) resided at and further developed Rusafa, not far from the Balikh-Euphrates confluence. Al Mansūr (d. 775) constructed al Rafīqa (Raqqa) on the model of Baghdad to replace the old Hellenistic-early Byzantine period site of Nikephorion/Callinicum.<sup>14</sup> Irrigation works and other agrarian development attended the development of these cities. Whatever the precise period of peak population,

13 C.-P. Haase, “Madīnat al-Fār: The Regional Late Antique Tradition of an Early Islamic Foundation,” in Bartl and Hauser, *Continuity and Change*, 29–38; C.-P. Haase, “Madīnat al-Fār—First Archaeological Soundings at the Site and the History of an Umayyad Domain in Abbasid Times,” in *Bilad al-Sham during the Abbasid Period, Proceedings of the Fifth International Conference on the History of Bilad al-Sham*, ed. M. A. al-Bakhtir and R. Schick (Amman, 1991), 1: 206–55; (Balikh) K. Bartl, “Balikh Valley Survey—Settlements of the Late Roman/Early Byzantine and Islamic Period,” in Bartl and Hauser, *Continuity and Change*, 333–48; (Androna) M. M.

Mango, “Excavations and Survey at Androna, Syria: The Oxford Team 1999,” *DOP* 56 (2002): 307–15 (after I completed this work, the publication of the Harran Survey work of N. Yardımcı came to my attention, but I was unable to take these data into account [N. Yardımcı, *Harran Ovası Yüzey Araştırması/Archaeological Survey in the Harran Plain*, 2 vols. [Istanbul, 2004]); M. M. Mango, “Excavations and Survey at Androna, Syria: The Oxford Team 2000,” *DOP* 57 (2003): 293–97.

14 J. M. Córdoba, “Prospección en el valle río Balikh—(Siria). Informe provisional,” *Aula Orientalis* 6 (1988): 149–88; K. Bartl, *Frühislamische Besiedlung im Balikh-Tal/*

*Nordsyrien* (Berlin, 1994); (population transfers) Al Balādhurī, *The Origins of the Islamic State*, ed. and trans. P. Hitti (New York, 1916), 253; (Raqqa/Nikephorion/Callinicum) M. Meinecke, “Raqqa on the Euphrates, Recent Excavations at the Residence of Harun er-Rashid,” in *The Near East in Antiquity: German Contributions to the Archaeology of Jordan, Palestine, Syria, Lebanon, and Egypt*, ed. S. Kerner (Amman, 1990), 2: 17–32; M. al-Khalaf and K. Kohlmeier, “Untersuchungen zu ar-Raqqa–Nikephorion/Callinicum,” *DM* 2 (1985): 133–62.

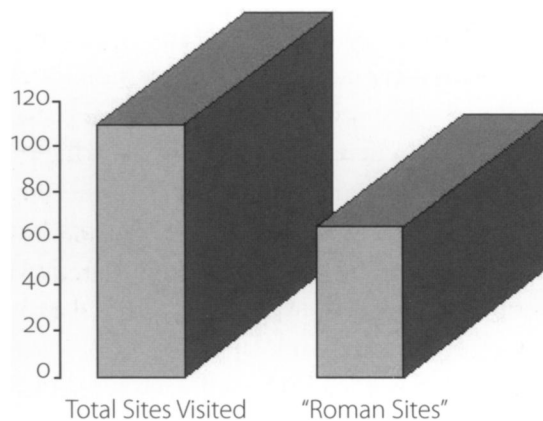
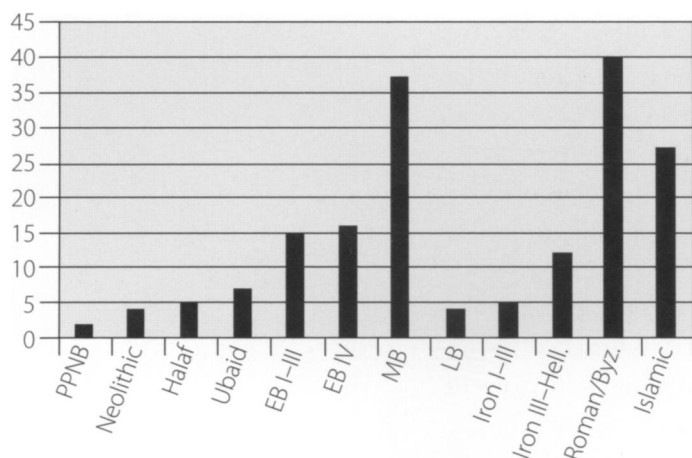


Fig. 12 Sajur survey

Fig. 13 Jabbul survey

we have evidence for considerable change in this part of the frontier zone during the sixth–ninth centuries, with the foundation of new settlements, the creation of new fortified sites, palace building, and attendant agricultural installations.

### *The Euphrates Valley*

A number of surveys along the Euphrates offer data that permit scope for comparison, both in the Euphrates valley itself, and with the north Jazira material. The Sajur Survey (fig. 12), which canvassed much of the territory of the city of Hierapolis (Membij), the capital of early Byzantine Euphratensis, recorded more settlements from the Roman-Byzantine period than did any other. The Jabbul Survey (fig. 13) also offers only rough-grained data, but these again are evocative: of the sites surveyed, more than half bear traces of Roman remains. Over most of the Levant, there was strong settlement continuity from the early Roman down to the early Byzantine period. The Jabbul Survey therefore indicates that this portion of the province of Euphratensis region was well populated until the medieval period.<sup>15</sup>

Algaze and his team explored a 60 km stretch of the river valley from Carchemish to Halfeti.<sup>16</sup> The surveyed area contained the late Roman-/early Byzantine-period cities of Zeugma and Samosata. Zeugma is now well known for the richness of the mosaics the emergency work uncovered there as well as for its tragic loss. The finds

<sup>15</sup> (Sajur Survey) P. Sanlaville, ed., *Holocene Settlement in North Syria* (Oxford, 1985); (Jabbul) R. Maxwell-Hyslop, J. du Plat-Taylor, M. V. Seton-Williams, and J. D. Waechter, "An Archaeological Survey of the Plains of Jabbul, 1939," *PEQ* 74 (1942–43): 8–40.

<sup>16</sup> G. Algaze, R. Breuninger, and J. Knudstad, "The Tigris-Euphrates Archaeological Reconnaissance Project: Final Report of the Birecik and Carchemish Dam Survey Areas," *Anatolica* 20 (1994): 1–96.

so far suggest a flourishing Roman urban center that persisted in its prosperity to the end of the early Byzantine period.

Around Zeugma the Tigris-Euphrates Archaeological Reconnaissance Project noted “a substantial peak in the population of the Birecik-Carchemish area” (fig. 14) during the early Byzantine period. Among the traces of this late antique population expansion were found a number of dispersed settlements, perhaps farmsteads or villas. The spread of outlying farms across the landscape generally indicates both security and intensive land use, as farmers colonized less fertile areas of the city landscape and felt safe enough to do so. The overall picture is one in which both town and country flourished in late antiquity, with a precipitous drop in population during the Umayyad period. There are several explanations for the lack of evidence for the earliest phase of Islamic control. As mentioned above, there appears to be broad continuity in many of the ceramics manufactured in the sixth and seventh centuries. Thus wares classified late Roman/early Byzantine may obscure early Islamic occupation. Alternatively, the lack of recognizable Umayyad pottery may reflect depopulation that came about due to emigration to Byzantine territory, deportation by the Arab authorities, or death in warfare and its attendant miseries. Whatever the case, Zeugma does not feature prominently in the textual sources of the Muslim period, and it seems probable that the city waned after the conquests.<sup>17</sup>

Three other projects along the upper Euphrates produce results that validate the picture of dense early Byzantine settlement. Survey of the Keban Reservoir region (fig. 15) found few Roman remains, while Byzantine material (including the middle period) was well represented.<sup>18</sup> More revealing is the evidence from Kurban Höyük (fig. 16), where the late Roman/early Byzantine period had the greatest settlement extent of any era. The findings from the Titriş Regional Survey (fig. 17) likewise reveal heavy settlement: late Roman/early Byzantine sites far exceed those of any other period, while it is

17 G. Parthey, ed., *Hieroclis Synecdemus et Notitiae Graecae Episcopatum* (Berlin, 1866), 41; H. Gelzer, ed., *Georgii Cyprii Descriptio orbis Romani* (Leipzig, 1890), 871–75; A. H. M. Jones, *Cities of the Eastern Roman Provinces*, 2nd ed. (Oxford, 1998), 532; C. P. Haase, “Sumaysât,” *EP* 9: 871b; S. Redford, *The Archaeology of the Frontier of the Medieval Near East: Excavations at Gritille, Turkey* (Philadelphia, 1998), 5–8; On Zeugma, see J. Wagner, *Seleukia am Euphrat/Zeugma* (Wiesbaden, 1976);

C. Abadie-Reynal et al., “Mission archéologique de Zeugma. Rapport sur la campagne de prospection 1995,” *AnatAnt* 4 (1996): 311–24; C. Abadie-Reynal, E. Bucak, E. Bulgan et al., “Zeugma-Moyenne Vallée de l’Euphrate, rapport préliminaire de la campagne de fouilles de 1999,” *AnatAnt* 8 (2000): 279–338; C. Abadie-Reynal et al., “Rapport préliminaire des campagnes de fouilles de 2000,” *AnatAnt* 9 (2001): 243–305; D. Kennedy, ed., *The Twin Towns of Zeugma on the Euphrates: Rescue Work and*

*Historical Studies* (Portsmouth, R.I., 1998); R. Early and J. H. Humphrey, eds., *Zeugma: Interim Reports, Rescue Excavations* (Packard Humanities Institute): *Inscription of Antiochus I, Bronze Statue of Mars, House and Mosaic of the Synôsai, and Recent Work on the Roman Army at Zeugma* (Portsmouth, R.I., 2003).

18 R. Whallon, *An Archaeological Survey of the Keban Reservoir Area of East-Central Turkey* (Ann Arbor, Mich., 1979).

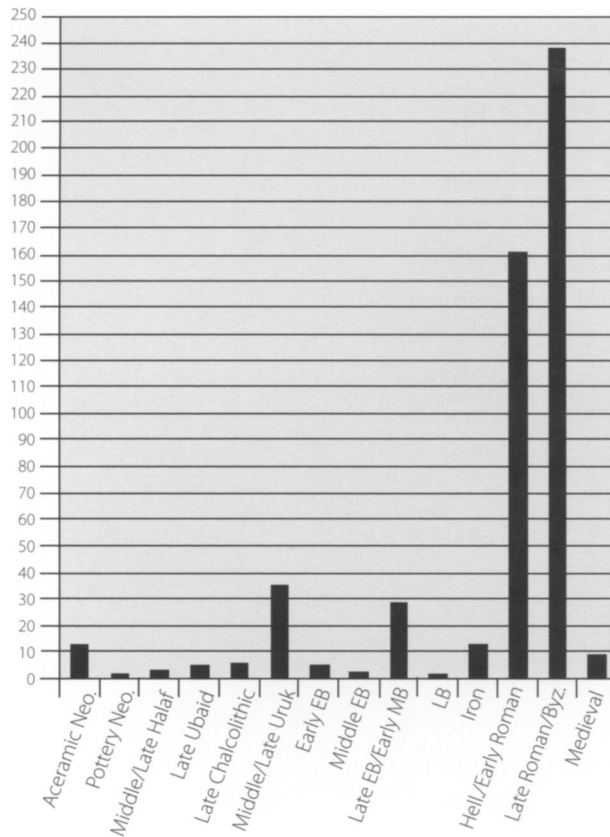
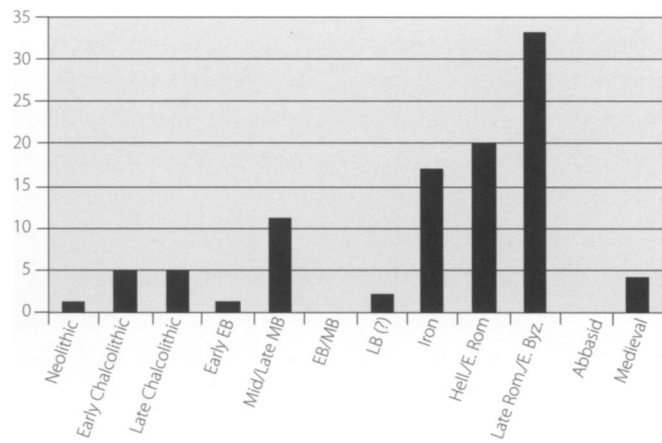
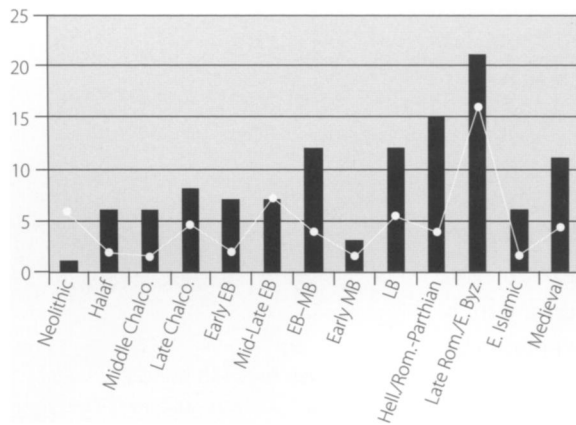
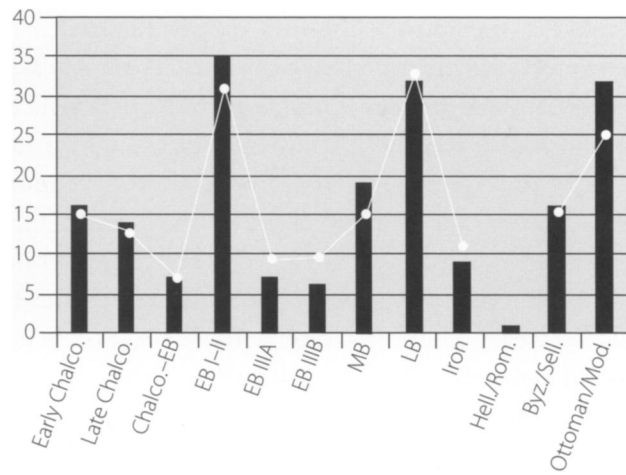


Fig. 14 Birecik Carchemish Survey region.  
After Algaze et al., "Tigris-Euphrates  
Project," fig. 14.

Fig. 15 Keban Reservoir

Fig. 16 Kurban Höyük

Fig. 17 Titriş regional survey



perhaps telling that no certain traces of habitation belonging to the early Islamic (Abbāsid) period were found.<sup>19</sup>

Results from Ümit Serdaroğlu's broad survey in southeastern Turkey from Kemaliye to Keban underscore the wealth and variety of sites requiring investigation. Unfortunately, intensive systematic survey was never undertaken in many areas, and the picture thus remains qualitative. Nevertheless we find the Byzantine period well represented. Approximately 11 of 58 sites yielded early Byzantine ceramics, with substantial sites known near Malatya (Melitene) and Samsat (Samosata).<sup>20</sup>

Samosata lay in the midst of the fertile Karababa basin, where a pleasant climate, long growing season, and abundant water rendered the hinterland fertile to the extreme. Alluvium deposited by frequent springtime flooding of the Euphrates further sustained the crops of this stretch of the valley. From its earliest history, then, Samosata was probably an agricultural center rather than the locus of extensive herding or ranching activity, though animal husbandry was always prominent. The city's importance as a communication center was marked; it commanded the only crossing between Melitene and Manbij (Hierapolis) and the only convenient route from Anatolia across the river to Edessa (Urfa), 50 km to the south. Samosata thus enjoyed easy communication with Edessa, where it marketed its agricultural surplus. The city fell to the Muslims in 639/40, but in 958 John Tzimiskes reconquered it. Samosata became part of the theme of "the poleis on the Euphrates" and a Byzantine administrative center and staging post for the expansion and consolidation of control in the East: in 1031 imperial forces marched from Samosata to capture Edessa. After the battle of Mantzikert (1071), the center fell under Seljuk control and then passed into Crusader hands, never to return to the Byzantines. Irrigated agriculture was practiced at both cities throughout Late Antiquity, probably with the assistance of water-lifting machines, because the depth of the banks of the Euphrates challenges canal building in all save the lowest river terrace areas.

In the Roman period, the *Legio III Gallica* engaged in building a water-screw at Samosata, and Islamic geographers noted that the agriculture of the landscape depended on both rainfall and irrigation. The medieval fate of Samosata's extensive Roman aqueduct system, which is known to have run more than 40 km along the Kahta River and the right bank of the Euphrates, is unknown. The omission of the aqueduct by the Muslim geographers may indicate that it had fallen into disuse after the conquest. However, the aqueduct functioned in some capacity as late as the sixth century, when an inscription recorded the repair of a stretch of it. Samosata remained a frontier city until the Turks overran the Byzantine East in the eleventh century. The loss of

19 G. Algaze, A. Misir, and T. J. Wilkinson, "Şanlıurfa Museum/University of California Excavations and Surveys at Titrish Hoyuk, 1991: A Preliminary Report," *Anatolica* 18 (1992): 33–60.

20 Ü. Serdaroğlu, *Aşağı Fırat Havzasında Araştırmalar: 1975 Surveys in the Lower Euphrates Basin* (Ankara, 1977).



the aqueduct suggests a medieval city much more modest than its late antique predecessor.<sup>21</sup>

The remains of ancient Samosata, now submerged, once covered 80 ha. There were both upper and lower cities. The upper city mound, which undoubtedly comprised the oldest settlement at the site, once rose some 45 m above the river. The mound, which occupied an area of 3 ha, was partially excavated in 1964–70. The latest occupation at Samosata was apparently the Seljuk period, to which belonged an abundance of medieval ceramics and structural remains (Level I). Traces of the early Byzantine occupation (Level III) were noted along the perimeter of the city walls. Further excavations were conducted at Samosata in 1978–87; these investigated the 5 km long Roman circuit wall. Despite the importance of the site and the years of work conducted there, archaeological data from Samosata remain meager.<sup>22</sup>

Mehmet Özdoğan and Savas Harmankaya's survey of the enclosed portion of Samosata and its surroundings noted 12 sites dated to the Classical period and 26 from the "Post-Classical" period and stated that most of the latter sites were Byzantine-early Islamic, but more refinement is not possible. The Adiyaman survey further explored the plains south and east of the modern town of Adiyaman, territory that in antiquity formed part of the hinterland of Samosata. The preliminary finds of this survey discovered medieval period pottery at 73 sites (compared with 74 yielding Roman wares—fig. 18). Excavation at Tille Höyük, of which the Adiyaman Survey was an extension, provided a chronological check on the survey pottery. While it may be inferred on site numbers alone that the population did not suffer a dramatic increase or decrease (total occupied area is unknown from one period to another), Roman settlement apparently did not increase markedly over the Hellenistic period. Interestingly, the dispersed settlement characteristic of the Roman and late Roman period contrasts with that of the medieval period, when new centers arose, often around fortified sites. One might recall that

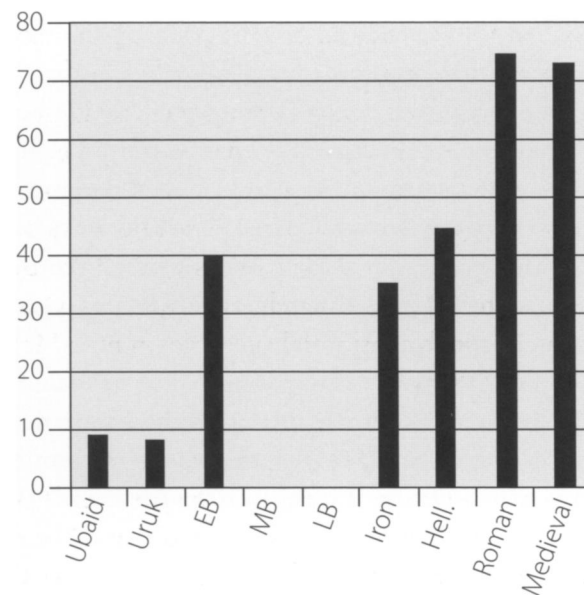


Fig. 18 Adiyaman survey

21 (Samosata) A. Kazhdan, "Samosata," *ODB* 3: 1836; E. Honigmann, *Die Ostgrenze des byzantinischen Reiches von 363 bis 1071* (Brussels, 1935); G. LeStrange, *Palestine under the Moslems: From A.D. 650 to 1500* (Beirut, 1965), 535; (aqueduct) Ü. İzmirilgil, "The Samosata (Samsat) Aqueduct Investigations, 1978–1979," in *Middle East*

Technical University, *Aşağı Fırat Projesi 1978–1979*; Çalışmaları: *Lower Euphrates Project 1978–1979 Activities* (Ankara, 1987), 284–89.

22 M. Özdoğan, *Lower Euphrates Basin 1977 Survey* (Istanbul, 1977), 117; T. Goell, "Samosata Archeological Excavations, Turkey, 1967," *National Geographic Society*

*Research Reports 1967* (1974): 83–109; Ü. Serdaroglu, *Aşağı Fırat Havzasında Araştırmalar: 1975 Surveys on the Lower Euphrates Basin* (Ankara, 1977); A. Tirpan, "The Roman Walls of Samosata," in *The Eastern Frontier of the Roman Empire*, ed. D. French and C. Lightfoot (Oxford, 1989), 2: 519–36.

this pattern is at variance with certain parts of the Tigris Valley, where Roman/Early Byzantine sites grouped around fortified points and later medieval settlement was scattered. One can only speculate, based on the limited evidence, that the Samosata region was less threatened than the regions explored by Algaze and that the late antique inhabitants felt secure dwelling in the countryside some distance from major military points.<sup>23</sup>

Gritille on the Euphrates, 10 km upstream of Samosata, shared with the latter the space of the fertile Karababa basin.<sup>24</sup> Gritille was fortified by the Byzantines during the eleventh century when they returned to Mesopotamia for the last time: the subsequent phases belong to the twelfth and early thirteenth centuries, with abandonment by the middle of the latter century. Landscape survey that covered a 43 km<sup>2</sup> area around Gritille on the west bank of the Euphrates revealed that the late Roman/early Byzantine period and the late medieval period were both characterized by peak settlement. Seventeen sites (fig. 19) that belonged to the Early Byzantine period covered a total area of 10.73 ha, while the medieval phase of the eleventh–thirteenth centuries yielded only seven sites covering the same area (10.72 ha). Only two Abbāsīd period sites were known. We cannot completely rule out the possibility that the Umayyad period is invisible to us, and that settlement in the Karababa basin persisted at a high level after the end of Byzantine rule. However, the late Roman/early Byzantine occupation around Gritille attests to the same dispersed population as noted farther north, once again testament to secure conditions in which farmsteads and hamlets were distributed over the countryside, closer to the land worked by the farmers of the district. Medieval-period remains, including the brief Byzantine reoccupation, suggest more unsettled conditions: occupation depended on the fortified points of Gritille and Samosata and quickly waned with the collapse of the Seljuk state in the face of the Mongol invasions.

### *Antioch and North Syria in the Early Byzantine Period*

Antioch was the key to northern Syria and Cilicia. It held a particularly important place within the strategic geography of the early Byzantine period and was much contested. Persian armies attacked Antioch in 529, and the city was sacked in 540. The Sasanians again besieged the city in 573 and seized control in 609/10. In 636/37, Antioch succumbed to the Muslims and remained under their control until 969. The second period of Byzantine occupation lasted until 1078.

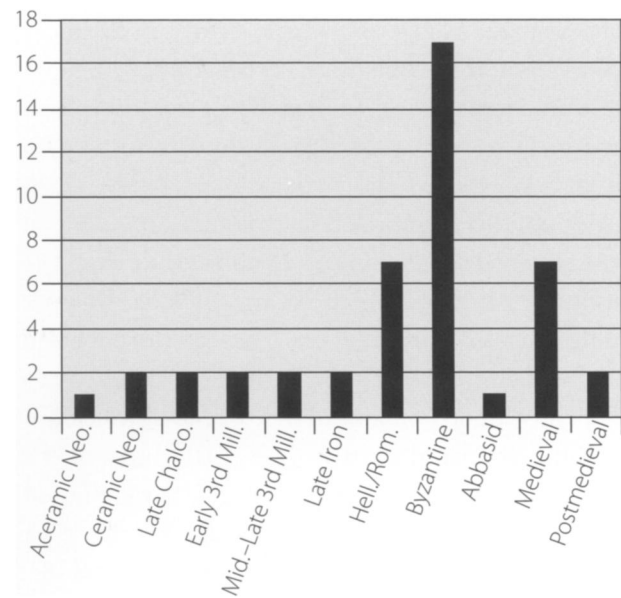


Fig. 19 Gritille survey

<sup>23</sup> S. R. Blaylock, D. H. French, and G. D. Summers, "The Adiyaman Survey: An Interim Report," *AnatSt* 40 (1990): 81–135.

<sup>24</sup> Redford, "Archaeology" (above, n. 17).

In late antiquity, the city was the seat of the *magister militum* of the East, and the head of one of the supply routes of the eastern front against Persia with its outlet to the sea via the Mediterranean ports of Seleukia Pieria and Antioch. During the fourth–seventh centuries, Antioch remained a vital civil administration center, the capital of Syria Prima, a terminus on major routes of trade, and a market for the agricultural produce of a flourishing hinterland. In the midst of this territory lay the low chain of limestone hills (Limestone Massif) where many of the more than seven hundred early Byzantine villages have been explored and so vividly detailed by the work of Tchalenko, Tate, and others. The produce from the Limestone Massif, mainly olive oil and wine, served the needs of both the regional towns, such as Antioch, Apamea, and Chalcis, and also Constantinople and other overseas markets. Surplus production was predicated upon heavy investment within the countryside, political and demographic stability or growth, and the existence of overseas markets where the agricultural surpluses found an outlet.<sup>25</sup>

It is difficult to determine precisely when the hinterland of Antioch and its neighboring city of Apamea declined. Certainly medieval Antioch was not the same city as its late antique predecessor, which had a population *intra muros* of about 150,000, and probably the same number living in the suburbs. This is to say nothing of the large rural population who made their home in the plain of Antioch and the surrounding hills. Despite the considerable interest shown in the Limestone Massif, widespread scientific survey and excavation have been slow to advance there. Tchalenko believed that the Limestone Massif flourished until the Persian invasions of the mid-sixth century, and then declined markedly in the early-seventh-century Sasanian occupation which, he argued, cut the Antiochene hinterland off from its natural market outlets around the Mediterranean. Tate's research showed that settlement peaked in the later fifth century and by the mid-sixth century had decreased significantly. More recently, Foss has suggested that the combination of invasion and plague caused substantial attrition among the population in the sixth century and a dwindling of population until

25 G. Tchalenko, *Villages antiques de la Syrie du Nord: Le massif du Bélus à l'époque romaine*, 3 vols. (Paris, 1953–1958); G. Tate, *Les campagnes de la Syrie du Nord du IIe au VIIe siècle: un exemple d'expansion démographique et économique dans les campagnes à la fin de l'antiquité* (Paris, 1992); C. Foss, "Syria in Transition, A.D. 550–750: An

Archaeological Approach," *DOP* 51 (1997): 189–269; M. Decker, "Food for an Empire: Wine and Oil Production in North Syria," in *Economy and Exchange in the East Mediterranean during Late Antiquity: Proceedings of a Conference at Somerville College, Oxford, 29th May, 1999*, ed. S. Kingsley and M. Decker (Oxford, 2001), 69–86.

the coming of the Muslims in the 630s.<sup>26</sup> Trombley, however, was more optimistic in his assessment of occupation in the Antiochene, and using epigraphic data he concluded that the region maintained a substantial population of Syriac-speaking agriculturalists and monks into the eleventh century, with Arabization taking place only in the twelfth.<sup>27</sup>

It seems likely, however, that when the Byzantines returned to Antioch in the tenth century, they entered a minor city at the fringe of the caliphate, not a booming provincial capital. Discussion of the fate of Antioch in the light of cities and settlement elsewhere is necessary in any consideration of medieval settlement in the Levant, since recent work has placed the city at the heart of the discussion of urban transformation. Medieval Antioch still contained at least some of the monumental buildings ascribed to it in late antiquity, but its population was certainly nothing close to its late antique peak: a tenth-century population of fifty thousand to seventy-five thousand is probably a reasonable guess. The fall in population was not the only change. Buildings gradually encroached on the great porticoes of the city that had, in the mid-sixth century, been 40 m wide, until the classical grid was covered by medieval structures.<sup>28</sup> Jean Lassus dated this activity to after 636,<sup>29</sup> but recently Hugh Kennedy and Wolfgang Liebeschuetz challenged this interpretation. Relying primarily on evidence from Gerasa, Pella, Antioch, and Apamea they argue that, at the end of Byzantine rule, illicit building increasingly closed in the formerly open grids of most cities. The fact that the cities of Byzantine Syria-Palestine offered no resistance to the Muslim invaders is also raised in the debate on the transformation of urban space; both phenomena are viewed as products of ineffective government. Kennedy viewed the swift conquest as reflective of long-standing demographic and economic malaise that gripped the Byzantine state at the time of the conquests. According to this line of argument, cities were no longer centers of trade or artisan activity on any scale, nor were they home to a prosperous or numerous elite who engaged in trade. Their collapse in the face of the Muslims is therefore unsurprising.<sup>30</sup>

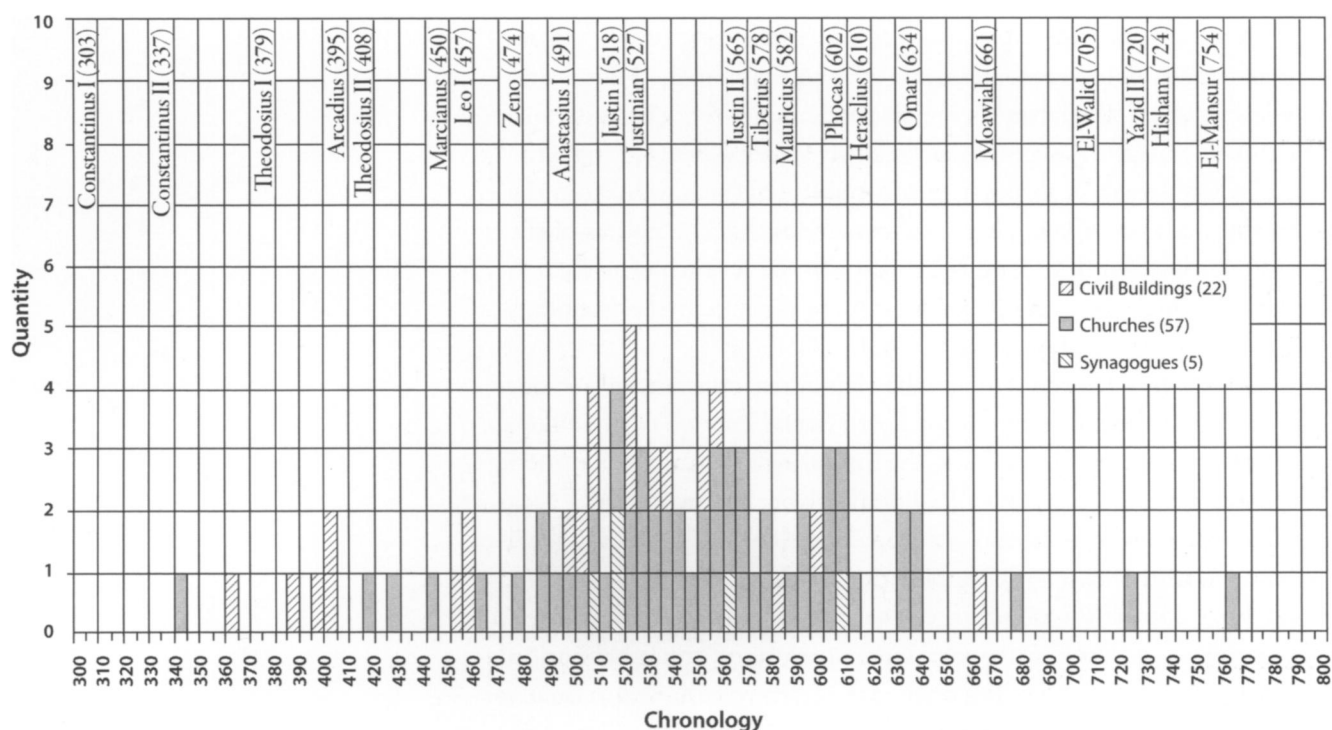
<sup>26</sup> (Population of Antioch) G. Downey, *A History of Antioch in Syria: From Seleucus to the Arab Conquest* (Princeton, 1961); E. Will, "Antioche sur l'Oronte: Métropole de l'Asie," *Syria* 74 (1997): 99–114; C. Foss, "Syria in Transition," 202.

<sup>27</sup> F. Trombley, "Demographic and Cultural Transition in the Territorium of Antioch, 6th–8th c.," *TOPOI Supplément* 5 (2004): 341–62.

<sup>28</sup> For an interesting analysis of the relics of the plan of Antioch in today's town, see P. Pinon, "Permanences et transformations dans la topographie d'Antioche après l'Antiquité," *TOPOI Supplément* 5 (2004): 191–219.

<sup>29</sup> J. Lassus, *Antioch on-the-Orontes*, vol. 5, *Les portiques d'Antioche* (Princeton, 1972), 136–37, 149–50.

<sup>30</sup> (Decline of Antioch and Apamea and their hinterlands) H. Kennedy and W. Liebeschuetz, "Antioch and the Villages of Northern Syria in the Fifth and Sixth Centuries A.D.: Trends and Problems," *Nottingham Mediaeval Studies* 32 (1989): 65–90; Tchalenko, *Villages antiques*, 68–75 (above, n.25); C. Foss, "The Near Eastern Countryside in Late Antiquity: A Review Article," in J. H. Humphrey, ed., *The Roman and Byzantine Near East* (Portsmouth, R.I., 1995), 213–23.



Wolfgang Liebeschuetz has recently advanced the notion of a sixth-century erosion of civic pride and standards of living and building. These are inextricably linked with economic change and are therefore more closely yoked to traditional scholarly notions of an early Byzantine society in crisis that rendered it vulnerable to Muslim takeover. According to Liebeschuetz, a number of afflictions, such as plague, earthquakes, and Persian invasion depopulated north Syria, which began to decline sharply after 550. He additionally argues that the southern cities of Syria-Palestine also declined, though later and less severely. He further appears to hypothesize a slow descent from the Early Byzantine period with population and prosperity declining after 750, finally hitting bottom in the Abbāsid or Fatimid period.

Liebeschuetz is certainly correct in linking the fate of the villages of the hill country of northern Syria with the fate of the cities to which they belonged. But his view, shared by Hugh Kennedy, that the region declined from the mid-sixth century, is contradicted by the material evidence and requires reassessment.<sup>31</sup> At Antioch the importation of Coptic red wares uncovered in the Princeton expedition, the maintenance of late antique buildings into the medieval period, and the continued mention of Antioch as a town by the Arabic geographers argues for continuity of settlement there. In the hinterland of Antioch at Al Mina, the Coptic red ware pottery and coins of Justin I, Justinian, and Herakleios belong to a sixth–seventh-century occupation phase of the site, suggesting continuity at least to the Muslim conquest. As

Fig. 20 Inscriptions in Israel 340–790. From L. Di Segni, “Epigraphic Documentation on Building in the Provinces of Palaestina and Arabia, 4th–7th c.,” in *The Roman and Byzantine Near East*, vol. 2, *Some Recent Archaeological Research*, ed. J. H. Humphrey (Portsmouth, R.I., 1999), table 4a.

31 H. Kennedy, “The Last Century of Byzantine Syria: A Reinterpretation,” *ByzF* 10 (1985): 141–83.

Foss notes, the last inscriptions from the Limestone Massif hinterland of the city date to 610, and those around Epiphaneia (Hama) and Chalcis to 605.<sup>32</sup> The latter region, in particular, offers a considerable body of epigraphy to suggest brisk building activity after 550 (fig. 20).<sup>33</sup> In her reassessment of D  h  s, the only published excavation from the Limestone Massif villages, Magness concludes that the houses of the settlement were built during the mid-sixth- to seventh-century construction, which calls for reconsideration of the accepted chronology of the hill villages and of Antioch itself.<sup>34</sup>

Recent survey in the Amuq valley has added substantially to our knowledge of the environment of north Syria. Previous archaeological work has generally focused on the limestone hills around Antioch. By contrast, the Amuq Valley Regional Project has produced a dataset for the richer agricultural lowlands as well as the more marginal upland environments. In his publication of the project, Jesse Casana noted that Antioch was far larger than we have previously allowed, because previous work has missed large portions of urban habitation visible in satellite imagery. The plains around the city have also finally begun to give up their Roman-Byzantine period remains. Until now these sites were overlooked when survey centered on the impressive tells of the Antiochene hinterland. The landscape survey in the Amuq reveals a densely settled, highly interlocking rural network, with extensive communications and intensive agricultural development, not least of which is a network of canals that utilized the waters of the Orontes.<sup>35</sup>

### *The Byzantine-Muslim Frontier from the Seventh to the Tenth Centuries*

The old frontier along the Tigris and Euphrates proved untenable in the face of Muslim expansion. As the Byzantines retreated from Syria and upper Mesopotamia, the borderlands shifted farther west, along the Taurus and Anti-Taurus, and were, like all medieval frontiers, a broad zone of contact and contention. Muslim attacks on the cities of Anatolia were both serious and sustained. Yet many of these centers recovered somewhat, and few suffered total abandonment. Others,

32 Foss, "Syria in Transition," 261; (Umm el-Jimal) J. Betlyon and B. DeVries, *Umm el Jimal: A Frontier Town and its Landscape* (Portsmouth, R.I., 1998).

33 A. Lane, "Medieval Finds at Al Mina in North Syria," *Archaeologia*, 2nd series 37 (1938): 19–78; L. Woolley, "The Excavations at Al Mina, Suedia II," *JHS* 58 (1938): 133–70, illustrating finds of LR1 amphorae and Byzantine lamps.

34 J. Magness, *The Archaeology of the Early Islamic Settlement in Palestine* (Winona Lake, Indiana, 2003), 196–209; D  h  s remains the only published excavation from the Limestone Massif, a glaring weakness that archaeologists must move to address (J.-P. Sodini, G. Tate, et al., "D  h  s (Syrie du Nord). Campagnes I–III (1976–1978). Recherches sur l’habitat rural," *Syria* 57 (1980): 1–304.

35 J. Casana, "The Archaeological Landscape of Late Roman Antioch," in I. Sandwell and J. Huskinson, *Culture and Society in Later Roman Antioch* (Oxford, 2004), 102–25.



like Sebasteia (Sivas), Tyana, Mokissos, and Tzamandos, remained centers of varying size and importance late into the medieval period.<sup>36</sup> Euchaita, on the northern fringes of the plateau, prospered deep into the seventh century and continued to have a vibrant commercial life centered on the cult of Saint Theodore Teron.<sup>37</sup>

After the battle of Mantzikert in 1071, the Turks swiftly overran much of the Anatolian plateau, whose fate has been largely attributed to the nature of the landscape itself and the nomadic element of Turkish culture. Since large parts of the core of Anatolia were highland steppe with a harsh climate, few trees, and scant surface water, the region is naturally viewed as the domain of pastoralists. There is thus an element of environmental determinism present in our views of how the Seljuks came to control the uplands, while the Greeks were confined primarily to the coasts, a situation not altogether different from that which prevailed during the Achaemenid empire.<sup>38</sup>

Neither Cappadocia nor Cilicia offers the same range of archaeological data as does Syria-Palestine. The Konya Plains Survey, led by Douglas Baird, explored lands just to the west of Cappadocia and found an early Byzantine (5th–7th centuries) peak settlement. During this time, numbers of settlements increased substantially: 90 percent of the Roman sites were still occupied in the early Byzantine period, and 70 percent of Early Byzantine sites contained evidence of Roman period occupation. Baird's results thus indicate strong persistence of existing communities. Agricultural invasion of marginal landscapes is clearly evidenced, indicating pressures on the land. Demographic growth thus engendered a shortage of high-quality arable land, which led to colonization of alluvial fans and poor hillside soils and their exploitation by crops and flocks.

At the same time that the communities of the Konya plain increased in number, they often expanded in size, sometimes dramatically so. When considered in light of the burgeoning site numbers, this increase in inhabited area offers persuasive proof for a marked increase in population. In the medieval period (post-7th century) the total area of settlements was only about 100 ha, far below even that of the Iron Age. Obviously these data come from only one survey on the plateau, and many more studies are needed before we can begin

36 (Tyana) D. Berges and J. Nollé, *Tyana: Archäologisch-historische Untersuchungen zum südwestlichen Kappadokien* (Bonn, 2000), 517–20, on a 10th-century ecclesiastical fragment found at Tyana; (Mokissos) A. Berger, "Survey in Viranşehir (Mokissos)," *AraSonTop* 13 (1995): 109–29; A. Berger, "Survey in Viranşehir (Mokissos),"

*AraSonTop* 14 (1996): 27–41; A. Berger, "Survey in Viranşehir (Mokissos)," *AraSonTop* 15 (1997): 219–37; A. Berger, "Viranşehir (Mokissos), eine byzantinische Stadt in Kappadokien," *IstMitt* 48 (1998): 349–429.  
37 F. Trombley, "The Decline of the Seventh-century Town: The Exception of Euchaita," in S. Vryonis, Jr., ed., *Byzantine*

*Studies in Honor of Milton V. Anastos* (Malibu, Cal., 1985), 65–90.

38 M. Hendy (*Studies in the Byzantine Monetary Economy c. 300–1450* [Cambridge, 1985], 37–145) offers an especially detailed analysis of the geographical and climatic factors in play.

to make comparisons with any certainty. Nevertheless, the survey's intensive methods and careful attention to off-site landscapes have yielded material of considerable comparative value. From it we gain perspective into general trends in the highland plains adjacent to Cappadocia, where we could expect a similar pattern.<sup>39</sup>

The Cappadocian evidence is of a different variety and is sparse by comparison with other parts of the Levant. To begin with, Cappadocia was never urbanized in the same way, nor to the same degree, as much of the eastern empire. For centuries large portions of the plateau belonging to the Roman provinces of Cappadocia I and II comprised imperial lands. The metropolis of Cappadocia I, Caesarea Mazaca (Kayseri), was the region's central place, a hub of communications and trade. Caesarea's prominence also depended in part on its standing as a religious center, a position greatly enhanced in the fourth century by Saint Basil. The city continued to produce prominent thinkers into the middle Byzantine period, such as the tenth-century archbishop Arethas. Caesarea's military importance lay in its communications and position as an *aplekton* (imperial field camp). Its economic character is well attested; the city was a medieval center of commerce where Muslim merchants often congregated. Although it fell to the Persians in 611 and the Muslims in 726, three centuries of relatively security passed until Caesarea's sack by the Turks in 1092.

From textual sources and the fieldwork of the team of the *Tabula Imperii Byzantini* (TIB), more than 330 sites are known from that region, corresponding generally to the old Diocletianic provinces of Cappadocia I and II and Armenia I. In late antiquity, these provinces possessed few cities. The twenty-one centers that A. H. M. Jones collected in his study of the cities of the east included three sites listed as *regiones* in Hierocles: Podandus, Doara, and Mokissos. Several others like Camulianae (located between Kayseri and Tabia) and Ciscisus (modern Yaylacik south of Kayseri) were apparently small settlements. These latter typify many sites in Cappadocia, which, though they occasionally appear in written sources, are neither described in detail nor yield extensive material data. Camulianae sent its bishop to the church councils of Constantinople II and III, and Ciscisus was represented at the Quinisext Council and Nicaea II. Both Camulianae and Ciscisus offer scant material remains for inspection, though the latter's immediate environs contained a number of rock-cut dwellings and, according to a nineteenth-century account, more than forty churches that are perhaps better read as domestic structures. At Ciscisus Hans Rott reported the remains of a built cruciform church that measured a modest 16 m long and 4.8 m wide at the western arm of the transept, yet nevertheless had substantial traces of decorative pretension. Nearly all traces of these installations had been destroyed

39 D. Baird, "The Settlement Expansion on the Konya Plain, Anatolia: 5th–7th Centuries, A.D.," in W. Bowden, L. Lavan, and C. Machado, eds., *Recent Research on the Late Antique Countryside* (Leiden, 2004), 219–46.

when the TIB survey team arrived in the area in 1973. The example at Ciscisus notwithstanding, many church buildings have survived to the present day because of their more substantial construction and focus of community life.<sup>40</sup>

Churches are therefore useful proxies for settlement.<sup>41</sup> They frequently offer chronological indicators for nearby settlements and thus add significantly to our view of regional site distribution. Several seventh-century Cappadocian churches are known, including examples from Akhisar, where work has progressed on a number of churches, including the famous Çanlı Kilise.<sup>42</sup> The latter belongs to the eleventh century, as do eleven other churches or monastic installations at Akhisar. Six others were built during the middle Byzantine era (8th–11th centuries). There is one sixth-century example, a masonry church once decorated with murals.

Other Cappadocian examples suggest an unbroken occupation. At Avcılar, in Rocky Cappadocia just north of Nevşehir, the rock-cut “Buried Basilica” at Durmuş Kadir Kilisesi dates to the sixth century, the church of Mezarlar Altı Kilise has traces of seventh- and ninth-century images, and the church of Karşıbecak has been assigned to the ninth century. As at Akhisar, the eleventh century was a prosperous period at Avcılar, with seven churches attesting considerable economic activity. Within a 40 km radius of Caesarea, a region more indicative of Cappadocia and the plateau at large, twelve locales provide material, mostly built masonry churches, that attests early and middle Byzantine settlement. The six churches around Göreme on Mt. Argaeus (Erciyes Dağı), all dated to the fifth/sixth centuries, witness considerable social and economic vibrancy in late antiquity.

Fifth-/sixth-century churches in the immediate hinterland of the metropolis of Caesarea are found at Pesek and Skupi-Üskübü (Byzantine Manda). The cruciform church of the Forty Martyrs at Manda has a polygonal apse, highly decorated with carved exterior pilasters and cornices, and thus bears traces of considerable architectural pretension. At Üskübü, just one km to the southeast, were once the remains of a Byzantine church dedicated to Saint George and cave dwellings with associated chapels. The church of the Panagia

40 F. Hild and M. Restle, *Tabula Imperii Byzantini*, vol. 2, *Kappadokien* (Vienna, 1981), 197–98; 206: 328 sites were recorded, but some are known only from textual evidence and are not localized; (church at Ciscisus) H. Rott, *Kleinasiatische Denkmäler aus Pisidien, Pamphylien, Kappadokien, und Lykien* (Leipzig, 1908), 173ff.

41 J. E. Cooper, “Medieval Cappadocia (9th to mid–11th Century) and the Byzantine Elite: The Archaeological Evidence” (unpublished DPhil thesis, Oxford, 2002), 57–61. On churches in Cappadocia generally, see G. de Jerphanion, *Les Eglises rupestres de Cappadoce (une nouvelle province de l’art*

*byzantin*), 2 vols. (Paris, 1925–1942); N. Thierry, *Haut Moyen-Age en Cappadoce: Les églises de la région de Çavusin*, 2 vols. (Paris, 1983–1994).

42 R. Ousterhout, *A Byzantine Settlement in Cappadocia* (Washington, D.C., 2005), 17–78.

at Tomarza, a cruciform, four-towered church, was built in the sixth century. About 30 km north of Caesarea, a seventh-century church has been found at Hirka, but no eighth-century ecclesiastical structure from this area has been recovered. Activity is detected once again in the ninth/tenth centuries with the rock-cut church near the village of Taşören/Ağırnaz (Byzantine Aragenā) and then in the tenth–thirteenth-century work in the church of Saints Cosmas and Damian at Develi. The church at Ispidin was decorated in the eleventh century and about the same time the alleged rock-cut monastic complex at Kepez was excavated.<sup>43</sup>

Tyana in southwestern Cappadocia was probably a sizeable city during the late Roman period; it was the capital of the province of Cappadocia II. Its fortunes during the Byzantine period are largely unknown. Constantine VII assigned it, along with Mokissos, to the theme of Cappadocia, where Bardas Skleros, a powerful magnate of the region's most influential family, had a fortified dwelling near Tyana, but the fate of the city itself in the middle centuries was unclear. The city continued to be an ecclesiastical metropolis until long after the lapse of Byzantine control. Tyana's status as a metropolis, stated in the ecclesiastical *notitiae*, finds some support in the recent discovery of church components of a probable tenth-century date. These finds suggest that the city recovered to some extent following the Muslim sack in 831. They are corroborated somewhat by a seal of a tenth-century bishop, Eustathios, and an eleventh- or twelfth-century bishop, Leo.<sup>44</sup>

The other metropolitan seat in late antique Cappadocia was Mokissos (Viranşehir). Hierocles lists this settlement, which lay midway between the Byzantine city of Koloneia (Aksaray) and Tyana, as a *regio*. According to Prokopios, at Mokissos there was a *phrourion*, or fortified center. Justinian demolished the old fortress and built a new one to the west of the settlement, which lay on level ground. Prokopios also relates that the emperor then built "many churches and hospices and public baths and all the other structures that are the mark of a prosperous city."<sup>45</sup> The remains of the town presently cover 45–50 ha (fig. 21), scattered over four hills flanking the road from Koloneia (Aksaray) to Tyana. Houses comprise the vast majority of the visible remains of the city, and these are modest in size,

43 (Church of Panagia, Manda) Rott, *Kleinasiatische Denkmäler*, 192–99; (churches of Manda and Üskübü) Hild and Restle, *TIB* 2, 228–29.

44 J. Darrouzès, ed., *Notitiae episcopatum Ecclesiae Constantinopolitanae* (Paris, 1981); Berges, J. Nollé, *Tyana*, 517f.;

Constantine VII Porphyrogenitus, *De thematibus*, ed. A. Pertusi (Vatican, 1952), 65; (seals) Cooper, "Medieval Cappadocia," 378–79.

45 Prokopios, *Buildings* 5.4.17–18, trans. H. B. Dewing (Cambridge, Mass, 1971).

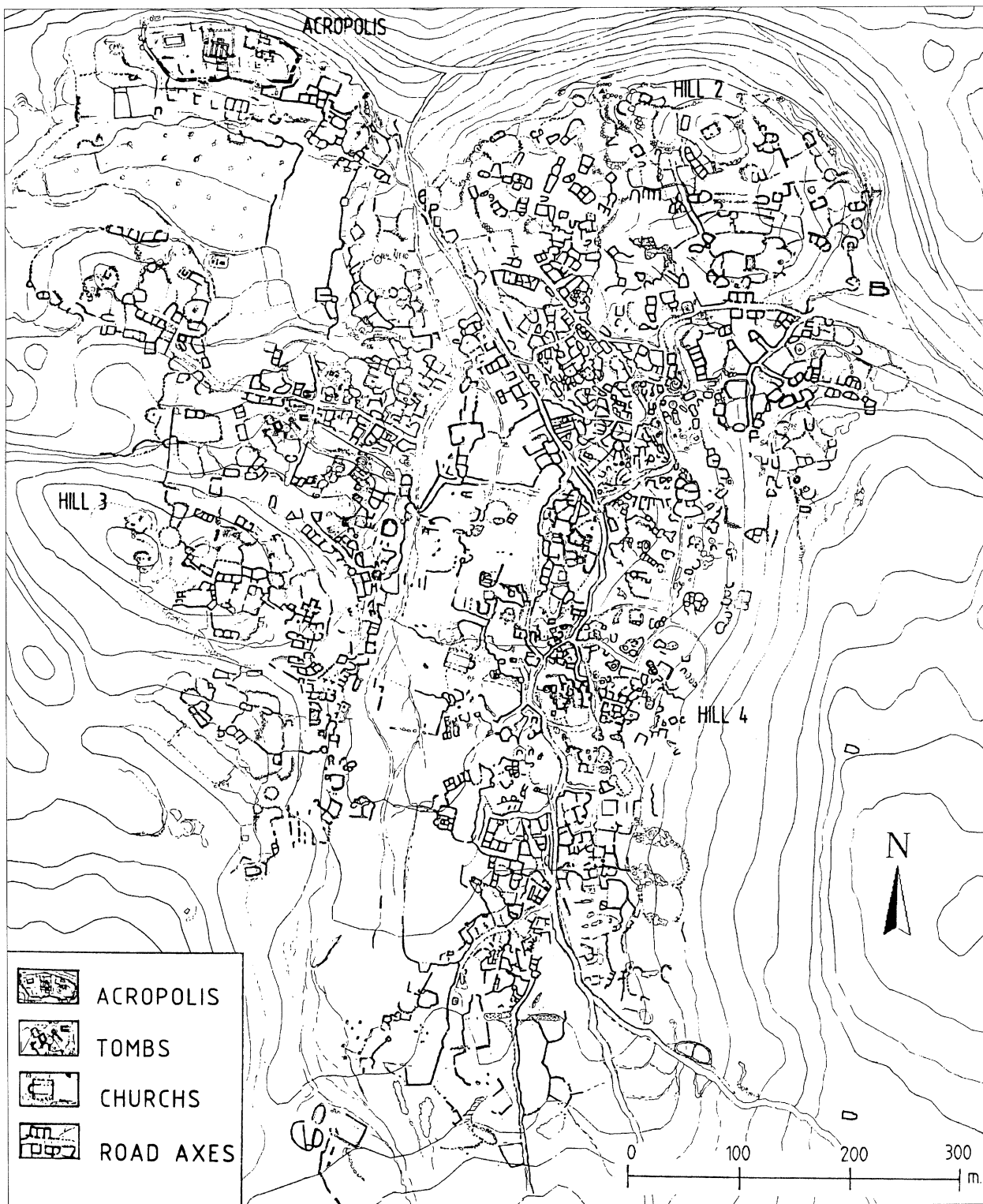


Fig. 21 Mokissos. From E. Schneider Equini, "Varia Cappadocica," *Archeologia Classica* 49 (1997): fig. 17.

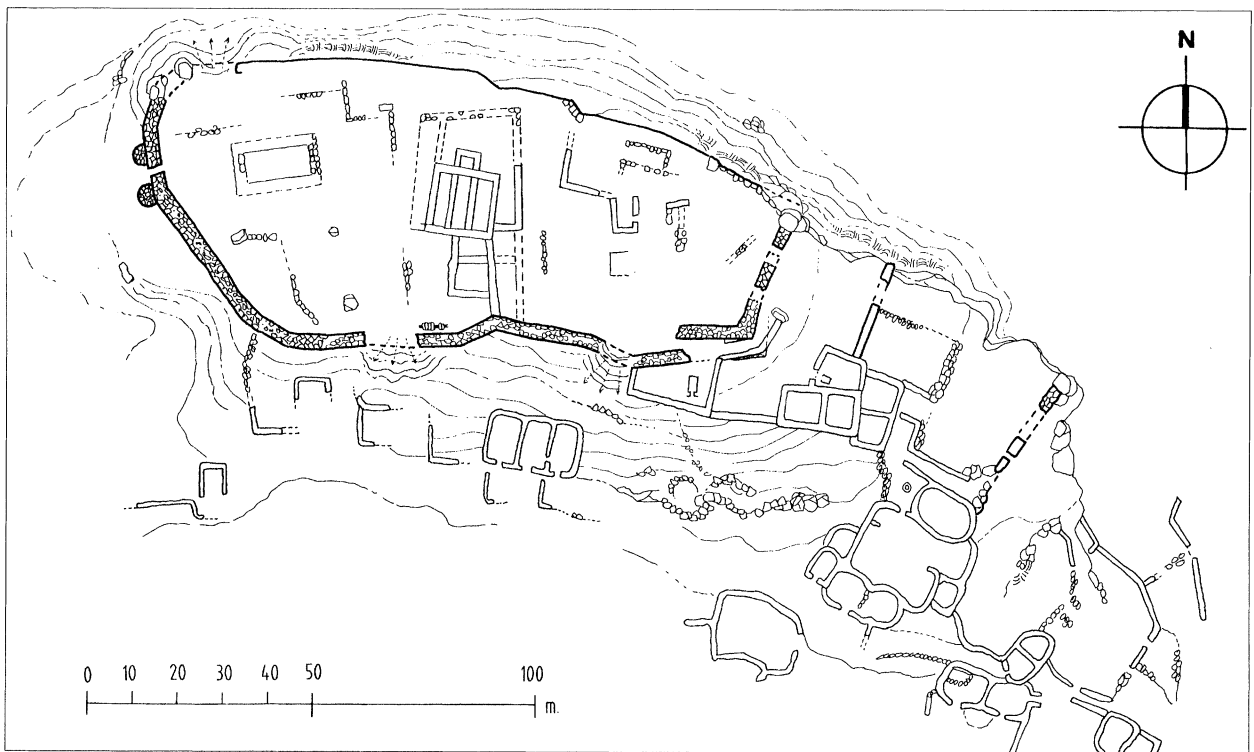


Fig. 22 Mokissos acropolis. From Schneider Equini, "Varia Cappadocica," fig. 3.

generally 5–7 m on a side, though 10 m dimensions are not uncommon. Walls are commonly constructed of dry courses of uncut local stone, sometimes with a rubble core, but rare examples of well-cut blocks used in domestic dwellings can be found. Most of the dwellings are irregular in shape and windowless, and many of the domestic complexes exhibit various types of masonry work and likely multiple phases of construction. Since the building techniques of the domestic architecture are mixed, often within the same unit, even a crude chronology is difficult to elaborate. Further, the technique of house construction is markedly different from that of the churches, which tend to be built of ashlar and with greater care.

The acropolis hill (fig. 22), lying at the northwest of the site, measures about 120 m long and 30–50 m wide and is surrounded by a *proteichisma* (outer fortification). It is crowned by a fort constructed in pseudo-polygonal masonry with three entrances, the main one of which lies on the western edge and is flanked by two semicircular towers. A number of buildings within the acropolis are perhaps barracks belonging to the Justinianic period, but a group of houses encroaches on the southwestern portion of the *proteichisma*, indicating that development continued after the abandonment or conversion of the fortress. The date at which the latter occurred is unknown, but it must certainly be later than the sixth century. There are clear sixth- and seventh-century ecclesiastical structures at Mokissos. Of these Ramsay and Bell noted, and Berger further studied, Kemer



Kilisesi and Kara Kilise. The former is a small cruciform church measuring 5,5 × 5,5 m at the crossing, topped by a cupola, while the latter is preserved to the springing of its arches and is constructed of ashlar blocks; Restle proposed that it was originally three-aisled, though later reconstructions apparently demolished the side aisles. Like nearly all the churches at Mokissos, Kemer Kilisesi and Kara Kilise belong to late antiquity, in their case the fifth-sixth centuries. Some later activity is detectable in the construction of Churches 2 and 3, which were built, according to Berger, sometime shortly after 600. Only outside the core of the Justinianic city at Domuz Düzlüğü do we view clear traces of middle Byzantine building activity in the form of Church 23, which belongs to the tenth–thirteenth centuries.<sup>46</sup>

Mokissos is impressive in its size and in its potential for the study of Anatolian architecture of the Byzantine period, especially domestic features. In the absence of stratified excavation, the impression of the material remains is one of a hill town that preserved pre-Roman forms of building and layout, including stepped roads designed to carry animal traffic to the higher ground. Justinian's architects, who markedly transformed the place, are perhaps responsible for the fragments of paved road found there, but they apparently neither imposed a regular plan nor did they provide sewers or a water supply, both of which the settlement lacks. The middle Byzantine settlement apparently dispersed further, migrating to the surrounding hills away from the by-then decaying Justinianic center. Middle-Byzantine-period settlement certainly persisted, evidenced by the castles that guard the communication routes at Kecikalesi and Comleci (Byzantine Koron).<sup>47</sup>

The easternmost city of "Greater Cappadocia" was Melitene (Eski Malatya), where limited excavation and surveys associated with the Güneydoğu Anadolu Projesi (GAP) have recorded remains. Melitene itself was the scene of fierce encounters between Byzantines and Muslims. In 656/57 Mu'âwiya (d. 680), while still governor of Syria, conquered the city, which remained one of the border regions (*thughur*) from which the Muslims launched their annual raids. The city fell to the Byzantines during the reign of 'Abd al-Malik, but was rebuilt by the Muslims during the reign of Hishâm b. 'Abd al-Malik. Only in 934 did the Byzantines retake the city, which the forces of Kourkouas thoroughly devastated. The Byzantines used

<sup>46</sup> (Mokissos) E. Schneider et al., "Varia Cappadocica," *Archeologia Classica* 49 (1997): 105–8; (Kemer Kilisesi and Kara Kilise) M. Restle, *Studien zur frühbyzantinischen Architektur Kappadokiens* (Vienna, 1979), 1: 46–48; A. Berger, "Survey in

Viranşehir (Mokisos)," *ArSon Top* 15 (1997): 219–37.

<sup>47</sup> Hild and Restle, *TIB* 2, 135–37, 216; Schneider et al., "Varia Cappadocica," 141–43.

anti-Chalcedonian Syrians to resettle the area, which became the seat of a *stratēgos* and then a *katepano*. Bardas Skleros held the city briefly during his revolt against Basil II, but the center remained in the imperial orbit until the battle of Mantzikert.<sup>48</sup>

The site of Melitene (Eski Malatya) still preserves traces of Justinian's fortification walls, with later modifications in the middle Byzantine period, but little else. Fieldwork in the hinterland of Melitene has provided evidence that elucidates the nature of settlement and human exploitation of the landscape. Eugenia Schneider Equini excavated the nearby hill village of Arslantepe, where the domestic quarters of the Roman-Byzantine period are built of double courses of fieldstone with a rubble core, and display building methods similar to some of the houses at Viranşehir (Mokissos).<sup>49</sup> These buildings show no obvious signs of destruction and, aside from the problem of a lack of Umayyad-period pottery, unstratified finds of Abbāsid and later material, including sgraffito ware and a trickle of coins that generally date to around 1000, suggest that occupation of the site continued well into the eleventh century. Farther afield, excavations conducted in preparation for the Karakaya Dam Project recorded traces of a Roman fort upstream of Melitene at Şemşiyetepe, while survey work by Özdoğan detected post-Classical (i.e., post-Roman) wares at 55 sites, compared with 22 deemed "Classical." Post-Classical settlement was found more or less evenly on both sides of the Euphrates, as well as along the local tributaries, suggesting once again dispersed settlement and perhaps smaller centers than in periods with fewer numbers of sites.

The archaeological data-set for Cilicia remains unsatisfactory in many regards, and survey of the countryside limited. Following the Arab capture of Tarsus and Anazarbos (Anavarza) circa 637, both the Byzantines and Muslims hotly contested Cilicia from the mid-seventh century onward. Though Tarsus was apparently reoccupied sometime after the reign of Herakleios, the Muslims destroyed it in 682, and Arab colonization of Cilicia began in earnest in the early eighth century. Their efforts focused on former Byzantine Mopsuestia (Ar. Maşşīša, modern Turkish Misis). Balādhūri and al Ṭabarī report that Herakleios removed the population from the land between Mopsuestia and Antioch and withdrew the garrisons from these regions. Subsequently the Mardaite frequently raided this area that became a no-man's-land between the empires. Nevertheless the Umayyads and early Abbāsids made stubborn efforts to strengthen and colonize Maşşīša, which became a staging point for Muslim raids against the Byzantines who held the highlands. In 965 John Tzimiskes finally captured Maşşīša/Mopsuestia and the town later slipped into Crusader control. Subsequently the city was under the

<sup>48</sup> C. Foss, "Melitene," *ODB* 2: 1336; E. Honigmann, "Malatya," *EP*, 6: 230; Hild and Restle, *TIB* 2, 233–37.

<sup>49</sup> E. Schneider Equini, *Malatya II. Rapporto preliminare delle campagne 1963–1968. Il livello romano-bizantino e le testimonianze islamiche* (Rome, 1970), 10ff.

sway of the empire of John and Manuel Komnenos until it was finally lost to the Armenian kingdom of Cilicia. A spectacular church mosaic of late antique date is the only noteworthy trace of the early Byzantine architecture.<sup>50</sup>

Since Tarsus remains inhabited today and Anazarbos awaits excavation, the archaeology of the former metropolises of Cilicia I and II is sparse to the extreme. From written sources it is known that Tarsus boasted an important synagogue, churches dedicated to Peter and Paul, and extensive suburbs. But apart from the finds of an early Byzantine cistern, the remains of the late Roman/early Byzantine gate at the southwest of the old city, and Justinian's bridge over the Cydnus, these Byzantine features have vanished. Stray finds of mosaics, such as the well-known example discovered in 1948, and the reports by earlier travelers of further remnants of the Late Roman city wall, which enclosed an area of at least 70 ha, do little more than confirm that Tarsus was a large and important late antique city. The excavations on Gözü Kule, in the southeastern portion of the modern village when Hetty Goldman conducted work in the 1930s, offered little attributed to the period of Byzantine reoccupation and settlement of the tenth–twelfth centuries, though a probable dyer's workshop may date to around this time. Recent rescue excavations at Republic Square in Tarsus have unveiled a Roman-early Byzantine paved street; substantial numbers of late Roman amphora (LR) types LR1, LR5, and LR6 provide insights into local production and consumption in the city. Empereur and Picon noted LR1 kilns at Tarsus and on the Cilician coast at Soli and Aigeiai (Yumurtalik), and with fuller publication Tarsus will join Antioch and Apamea as a major producer and consumer of wine, oil, and other regional products contained in these jars.<sup>51</sup>

The medieval material from Höyük Gözlü at Tarsus is cursorily published, but the Phocaean Red Slip wares and Umayyad cream wares provide evidence of occupation around the city across the Muslim Conquest. The green glazed wares identified as Umayyad are more probably Abbāsid types; these seemingly form the bulk of material recovered from the medieval layers. Later occupation layers included plentiful finds of Duochrome sgraffito ware, suggesting an eleventh-century date, and also later monochrome glazed examples.

50 E. Honigmann, "al- Maşşīša," *EI*<sup>2</sup> 774a; Hild and Restle, *TIB* 2, 351–59.

51 H. Goldman, "Preliminary Expedition to Cilicia, 1934, and Excavations at Gözlü Kule, Tarsus, 1935," *AJA* 39 (1935): 526–49; H. Goldman, "Excavation at Gözlü Kule, Tarsus, 1937," *AJA* 42 (1938): 30–54;

H. Goldman, *Excavations at Gözlü Kule, Tarsus*, vol. 1, *The Hellenistic and Roman Periods* (Princeton, 1950); (Republic Square Excavations) C. Toskay, personal communication, 15 June 2005; (kilns) J.-Y. Empereur and M. Picon, "Les régions de production d'amphores impériales en Méditerranée

orientale," in *Amphores romaines et histoire économique: dix ans de recherche*, ed. M. Lenoir, D. Manacorda, and C. Panella (Rome, 1989), 223–48.

Some of the latter were possibly of Byzantine manufacture as well as the output of Levantine workshops.<sup>52</sup>

The scant urban settlement record is remedied a little by a glance at Anazarbos, which preserves an extensive circuit wall of early Byzantine-Islamic date, an amphitheater, theater, and extensive necropolis with both built sarcophagi and rock-cut tombs, to name but a few of the Classical and Roman-period features. The impressive aqueducts still survive in places, and these undoubtedly continued to function at least into the seventh century. To the Early Byzantine period belong three large churches, including the three-aisled Church of the Apostles, a basilica church measuring 56.2 m × 28.1 m and built in large part of Roman-period spolia. The second basilica, in the southwest of the city, was cruciform in shape (51.8 m × 37.3 m), while in the southeast, dated to 516, is another basilica, also of impressive dimensions (43 m × 30.5 m). Gough located a bathhouse (40 × 25 m), possibly of Roman origin, in the city center, but the presence of banded brickwork typical of early Byzantine building indicates a late antique construction or repair. These buildings attest to the continued prosperity and size of the settlement in the sixth century, and we must presume that the town continued to flourish right up to the Muslim invasion.<sup>53</sup>

A modest middle Byzantine shrine, decorated with frescoes still visible during Gough's visit, lies on the shoulder of the acropolis hill, on the path leading to the fortress itself. Traces of the middle Byzantine fortification works around the site, including the curtain wall atop the spur of the acropolis, attest to the return of Greek rule. On the northern flank of the fortified spur, Gough discovered Justinianic-period fortification activity that was apparently later reworked. Given the fact that the city, despite limited archaeological examination, has yielded considerable remains from the early Byzantine, Muslim, middle Byzantine, and Armenian occupation periods, there is no doubt that Anazarbos remained an important place throughout the early medieval period, supported as it was by its superb position and extensive territory that, in the tenth century, remained optimal for both agricultural and herding.<sup>54</sup>

When, in the mid-seventh century, the Byzantines evacuated the population between Tarsus, Alexandretta, and Antioch, they apparently transported large sections of the people of Mopsuestia elsewhere,

52 F. Hild and H. Hellenkemper, *Tabula Imperii Byzantini 5: Kilikien und Isaurien* (Vienna, 1990), 428–39; (medieval ceramics) F. Day, "Islamic Finds at Tarsus," *Asia* (March, 1941): 143–48.

53 F. Hild and H. Hellenkemper, *TIB 5*, 178–84.

54 M. Gough, "Anazarbus," *AnatSt 2* (1952): 85–150; al-Iṣṭakhri, *Kitāb al-Masālik wa-l-Mamālik*, 2nd ed., ed. M. J. De Goeje (Leiden, 1927), 63; Le Strange, *Palestine under the Muslims*, 389 (above, n. 22); (lower city walls, medieval phases)

H. Hellenkemper, "Die Stadtmauern von Anazarbus," in *XXIV Deutscher Orientalistentag vom 26. bis 30. September 1988. Ausgewählte Vorträge*, ed. W. Diem and A. Falaturi (Stuttgart, 1990), 71–76.

perhaps to areas of the plateau. The former Byzantine Mopsuestia thus became Arabic Maşşışa, the major Muslim stronghold in Cilicia Pedias. Like the cities of Tarsus and Anazarbos, Mopsuestia retains only scattered reminders of its late antique and medieval past. Some remnants of the Roman city wall survive that were maintained in the Early Byzantine era; they enclosed an area of about 40 ha. There is some disagreement about which rulers were responsible for the reconstruction of the city during Muslim rule: 'Umar II is known to have provided the suburban complex of Kafarbayya with a cistern, and Hishām apparently added the fortifications, traces of which are visible today.

Seton-Williams's survey in the early 1950s covered most of low-land Cilicia, but primarily explored tells and larger sites with architectural remains and thus offers limited scope for quantification. Only a restricted corpus of comparative materials was available for the analysis of finds from this work and the resultant chronologies are therefore rather coarse-grained. These data suggest a peak in occupation in the Roman–early Byzantine periods, but offer little insight into the crucial Byzantine–early Islamic transition. Finds of sgraffito ware at thirty-nine sites argue for a wide distribution of settlement from the eleventh century onward.<sup>55</sup>

### *Settlement Trends: The Survey Data*

Despite the limitations of the survey data presented above, which are functions of in part the methodology employed and in part the conditions in which they were undertaken, one can venture general observations on broad settlement patterns from the sixth to the eleventh centuries. Along the Tigris and Euphrates corridor, all present indications point to a high density and wide distribution of settlements in the late Roman/early Byzantine period of the fourth–sixth centuries.

From the Tigris, the results remain qualitative and we can gain little more than an impression from them. Along the tributaries of the westernmost portion of the Tigris watershed considered here, the valleys of the Batman Su and Garzan Su suggest intensive habitation during late antiquity, which fanned out across the landscape, over a variety of soil, indicating substantial pressures from the population on available land resources. Farther east, along the Bohtan Su River and in the plain of Cizre, late antique settlement was present, but more restricted than it was farther west and less common than late medieval/early Ottoman period sites.

Along the Euphrates, multiple surveys record a very high density of Byzantine-period sites followed by a significant decline in the early Islamic period. For example, the Sajur Survey, which examined large sections of the landscape around Manbij (ancient Hierapolis,

55 M. V. Seton-Williams, "Cilician Survey," *AnatSt* 4 (1954): 121–74; (sgraffito chronology and forms) K. Dark, *Byzantine Pottery* (Stroud, Gloucestershire, 2001), 65–77.

metropolis of Euphratensis), shows Byzantine settlement numbers higher than even in the Bronze Age. These results broadly parallel those of other surveys in the northern Euphrates valley. Farther upstream, the hinterland of the Roman/Byzantine city of Zeugma witnessed explosive growth in settlement. The Birecik-Carchemish survey provides good evidence for a decline of sites around the old central-place settlement of Carchemish (Greek Europus/Roman Colonia Aurelia Dura), while a corresponding increase along the Euphrates at Zeugma probably indicates a translocation of population in the early Byzantine period. Following the Muslim conquests, Algaze states that the area was “sharply depopulated.”<sup>56</sup> Wilkinson suggests that, since population apparently rose in the Balikh and portions of the Khabur valley during the early Islamic period, the archaeological picture may reflect migration to the latter areas.<sup>57</sup> Perhaps the Umayyad authorities removed the population from the vulnerable frontier zone, as they did with exposed coastal cities along the Levantine shore. It is possible that the Byzantines themselves removed the population from these regions, either as a matter of defensive policy, as Herakleios ordered for Cilicia and the Antiochene, or in the course of border raiding and capture. The policy of forced population transfer came to particular prominence under Constantine V, who deported large numbers of people from the Euphrates region and settled them in Thrace. Constantine seized a number of the inhabitants of the district of *Ḳālīḳāla* who were subsequently settled elsewhere in the eastern frontier, but they were eventually recaptured by the Muslims and settled in Syria.<sup>58</sup>

Concordant with a general expansion of settlement in the early-Byzantine-period Euphrates valley are the results of surveys from the region northwest of Edessa, across the river from Samosata, where regional prospection around Kurban Höyük and Tıtrış (figs. 18 and 19) has furnished evidence for a dramatic settlement peak in the early Byzantine period and a general lack of early Islamic settlement until the ‘Abbāsid period, when a slight recovery emerges in the record. On the right bank of the Euphrates, in the plain of Adiyaman in the former territory of Samosata, initial survey results signal a spike in settlement from the Roman to early Byzantine periods. The lack of refinement in the ceramic analysis as presented in the preliminary reports of the work around Adiyaman means that interpretation of the medieval period must be circumscribed to stating that a largely unbroken series of ceramics is known, indicating some level of habitation whose position relative to the early Byzantine cannot be determined as yet. Similarly, Özdoğan’s Karakaya Dam Survey on the Turkish upper Euphrates can only be crudely quantified; from it we see that the settlement noted under the rubric “post-Classical” was

<sup>56</sup> Algaze et al., “Preliminary Report,” 207 (above, n. 4).

<sup>57</sup> Wilkinson, “Regional Approaches,” 246 (above, n. 2).

<sup>58</sup> P. Charanis, “The Transfer of Population as a Policy in the Byzantine Empire,” *Comparative Studies in Society and History* 3 (1961): 140–54.

far greater than other periods, a fact that can, in small part, be attributed to the chronological boundaries imposed on the data.<sup>59</sup>

The Jazira evidence contrasts with that of a large part of the Euphrates valley. In several instances from the former region, fewer late antique Byzantine (and Sasanian) settlements were recorded compared with the number of those during the later Islamic period. In one instance (Tell Brak) results are inconclusive because sites of the first millennium CE were grouped together, and in two instances (Tell Beydar and the Upper Khabur), Byzantine sites were more numerous than those of the following Islamic period. Several factors may be responsible for these variations, but according to the present data, Byzantine occupation of the northern Jazira was less dispersed and less intensive than in other areas of the East. Although not part of the quantified corpus considered here, Bartl's work on the Balikh River argued for a settlement peak during the Umayyad and Abbasid periods. One possibility is that settlement of the early Byzantine period in this region was restricted at least in part due to the proximity of the frontier and the unsettled relations and open warfare that frequently prevailed between Byzantium and Sasanian Persia. Although Byzantine-era irrigation canals are known from both the Khabur and Balikh valleys, it is likely that landowners and the state were loath to invest in such projects over much of the later sixth and early seventh centuries, when raiding and invasion would have rendered such investments vulnerable.

The probable Islamic-period recovery of this region's population is perhaps explained when seen against the backdrop of settlement after retreat from other areas. Both the Khabur and the Balikh flow close to the medieval cities of Raqqa and Resafa, where the Umayyad caliphs took a special interest in developing canals and other agrarian features. It is probable that the northern Jazira witnessed the arrival of state-ordered transfers or refugees from the perilous Euphrates-Tigris valleys. Further study is needed to verify this picture, particularly since traditional survey tends to miss large numbers of sites. Of the surveys in the Jazira, only the Tell Beydar Survey considered non-mounded sites, low sites, and other off-site features. Unsurprisingly, the Tell Beydar region, which lies in the Byzantine-Sasanian frontier zone itself (thus the late antique ceramics are classified "Sasanian"), shows a much higher incident of late antique settlement, since it has

<sup>59</sup> (Birecik-Carchemish) Algaze, 1991, "Final Report," 23; (Adiyaman) S. R. Blaylock, D. H. French, and G. D. Summers, "The Adiyaman Survey: An Interim Report," 124–30; (Karakaya) M. Özdoğan, *The Lower Euphrates Basin 1977 Survey*

(Ankara, 1977); (Titriş) G. Algaze, A. Misir, and T. J. Wilkinson, "Şanlıurfa Museum/University of California Excavations and Surveys at Titriş Höyük, 1991: A Preliminary Report," *Anatolica* 18 (1992): 33–60.

been demonstrated elsewhere that Byzantine and Sasanian settlement in the Jazira tended away from tells and instead occupied the low areas of the plains.<sup>60</sup> Since, as I have noted above, tells have been the focus of most older survey work, a significant number of late antique sites have slipped through our net and the picture as it stands is open to considerable future modification.

In the Antiochene and Cilicia, the fourth–seventh century phase left a strong marker in the archaeological record. Previous investigations of the countryside around Antioch have, due to methodological weakness, drastically underrepresented the early Byzantine occupation of the area. The dispersal of settlement and migration away from the traditional, defensible hill sites and into the open lowlands denotes a sense of security and a prevailing need for land. Investment in irrigation canals, the concatenation of routes of communication, and the extension of settlement into the highlands around the city of Antioch all indicate a growing population and an increase in agricultural exploitation and trade. Sometime between the seventh and tenth centuries, however, the small, widely dispersed settlements that typify the early Byzantine period disappeared. A real decline in numbers of people is likely: the suburbs of Antioch, highly developed in late antiquity, were in all likelihood abandoned by the end of the seventh century.<sup>61</sup> The precise pace and nature of change in settlement following the Muslim conquest of this part of north Syria remain uncertain.

As noted above, lowland Cilicia certainly shared in the general population and economic expansion of late antiquity. The Byzantine-Muslim transition once more remains mysterious. The limited Umayyad material finds at Tarsus, and continued investment in the cities of Tarsus, Maşşışa, and Anazarbos signal vital urban life from at least the 'Abbāsid period, and limited survey strongly suggests that a significant number of rural sites continued on through the medieval period. The proposed population transfer wrought by Herakleios did not, apparently, thoroughly depopulate the plain. However, the no-man's-land condition of the countryside and frequent sparring of the two powers along the southern sector of the eastern frontier no doubt threatened communities, particularly those proximate to the major routes of communication.

The present evidence argues for strikingly different fates for the most exposed zones of the northern frontier between Byzantium and Islam, and the southern Levant. At the regional level, the landscape of the city territories of Antioch, Zeugma, and Samosata suffered deep attrition: the number of sites dropped precipitously from the Byzantine/early Islamic periods. In other northern regions, such as along the Balikh and portions of the Khabur, populations remained

60 Wilkinson, "Regional Approaches," 237, 246; Casana, "The Archaeological Landscape," 104–5 (above, n. 35).

61 J. Casana, "From Alalakh to Antioch: Settlement, Land Use, and Environmental Change in the Amuq Valley of Southern Turkey" (unpublished PhD dissertation, University of Chicago, 2003), 309–10.



stable or even increased. Life also continued with little disruption in the southern Levant at places like Bet Shean and Umm el-Jimal.

Cilicia and Antioch suffered depopulation, in no small part a function of imperial policy, but deepened by annual jihad and Byzantine military action. The extension of Muslim attacks into Anatolia meant that exposed populations were pressured to flee to safer locales. The remains of sites like Mokissos support the argument that Cappadocia did not escape the travails visited upon Byzantium during the seventh and eighth centuries. But the persistence of church buildings and considerable medieval domestic remains demonstrate that even poorly defended towns need not have been abandoned in the face of the Muslim threat. The substantial numbers of small rural sites argue that any population decline in Cappadocia was either slight or ephemeral. In fact the rural face of settlement and evidence for agricultural exploitation over sizeable areas of the plateau defy the traditional view that a lack of cities connotes a low population.

### *Farming the Frontiers: Settlement and Agrarian Life along Byzantium's Eastern Borders*

The world of Early Byzantine agricultural production and trade was highly integrated, with exchange of imported goods penetrating deep into the countryside, even in remote landlocked areas. Hallmarks of the late antique Mediterranean economic arena were both a high volume of products and a high velocity in the movement of those products. Bulk, low-valued goods traveled both overland and by ship by degrees and distances rarely witnessed in the thousand years of Greek cultural influence in the Levant. In the frontier regions of the Byzantine Empire, no less than in the more secure cities at the heart of Asia Minor, we see material signs of a generally dense population and vigorous agrarian life. This agrarian realm was not simply self-contained, but in all cases tied to the major urban centers of the rural districts. The impressive degree of urbanization attended by an equally full occupation of the countryside is a feature of the early Byzantine era throughout many of the eastern provinces, especially large stretches of the Tigris-Euphrates corridor.<sup>62</sup>

The most obvious example of the integrated agrarian economy of the frontier zone of the early Byzantine era comes from its westernmost extensions, where Antioch and its vast hinterland, whether mountain or plain, were packed with settlements. Here, where archaeological work has been varied and sustained, the multifarious pieces of the puzzle are building an impressive picture of heavy rural settlement in symbiosis with one of the true metropolises of the early Byzantine world. Palynological data attest the further advance of agriculture into marginal regions and particularly the dominant place of

62 M. Decker, *Tilling the Hateful Earth: Agriculture and Trade in the Late Antique East* (Oxford, forthcoming).

the olive in the economy. In addition to the finds of numerous oil and wine presses, suggestive of major investment aimed at capturing a consistent surplus production, potteries that produced late Roman Amphora 1 wares (LR1) line the northeast Mediterranean coast from Syria to Rhodes. These kilns produced jars, once filled with wine and olive oil, from thousands of farms in the northeastern Levant, that are found on hundreds of sites around the Mediterranean and represent an economic current of considerable breadth.<sup>63</sup>

Farther inland, the relatively rich valleys of the Tigris and Euphrates had been heavily exploited for agriculture since at least the Neolithic era, and it is best to see the Byzantine period within the framework of long cycles of settlement and abandonment and land use and disuse. Through this lens of the *longue durée*, the Byzantine moment in Syria and upper Mesopotamia appears as one of substantial growth and dynamism in many areas. Population pressures on limited arable land encouraged farmers to seek more efficient agricultural strategies, and to work the land with greater regularity. Shorter fallowing periods meant that more nutrients were extracted from the soil by crops with less time for recovery. Ceramic chamber pots and vessels containing other organic waste were carried from villages, broken, and ploughed into the soil, creating the sherd scatters that Wilkinson first recognized as relics of the deliberate distribution of such organic refuse. Such strategies represent human efforts to sustain or increase yields by replacing carbon and nutrients normally lost to the soil through cropping. Farmers thus aimed to stabilize yields, ameliorate poor ground into which cultivation had been forced by population pressure, or reclaim wasteland. These intensive strategies attend high population and mirror conspicuously those areas where greater numbers of early Byzantine sites are witnessed over a broad swathe of the middle Euphrates, especially in the hinterland of Zeugma-Apamea as well as near Edessa and Samosata.<sup>64</sup>

Early Byzantine maintenance and investment in the irrigation works along the frontier can only be surmised at present: the cities of

63 (Presses) O. Callot, *Huilieries antiques de Syrie du Nord* (Paris, 1984); (palynological data) U. Baruch and S. Bottema, "A New Pollen Diagram from Lake Hula: Vegetational, Climatic, and Anthropogenic Implications," in *Ancient Lakes: Their Cultural and Biological Diversity*, ed. H. Kawanabe, G. W. Coulter, and A. C. Roosevelt (Ghent, 1999), 631–36; Y. Yasuda, H. Kitagawa, and T. Nakagawa, "The Earliest Record of Major Anthropological Deforestation in the Ghab Valley,

Northwest Syria: A Palynological Study," *Quaternary International* 73–74 (1999): 127–36; (LR1 amphorae) M. Decker, "Food for an Empire: Wine and Oil Production in North Syria," in *Economy and Exchange in the East Mediterranean during Late Antiquity* ed. Kingsley and Decker, 69–86.

64 T. J. Wilkinson, "The Definition of Ancient Manured Zones by Means of Extensive Sherd-Sampling Techniques," *JFA* 9 (1982): 323–33; (sherd scatters—Zeugma) Algaze et al., "The Tigris-

Euphrates Archaeological Reconnaissance Project; Final Report," 22; (sherd scatters—Middle Euphrates) Wilkinson, *Town and Country in South-eastern Anatolia*, vol. 1, *Settlement and Land Use at Kurban Höyük and Other Sites in the Lower Karababa Basin* (Chicago, 1990), 69–79; G. Algaze et al., "The Chicago Euphrates Archaeological Project 1980–1984: An Interim Report," *Anatolica* 13 (1986): 44.

Barbalissos, Dibsi Faraj, Sura (Souriya), Callinicum, and Circesium lay in or beyond the “zone of uncertainty” in which rainfall was unstable. Food security thus depended on a number of interlocking strategies, with the Byzantine-era farmers maintaining old canals, such as that discovered on the Balikh, and excavating new ones. In other areas of the frontier, as at Hierapolis and farther east at al-Andarin in the Chalcidike, farmers in late antiquity developed extensive underground drainage galleries (*qanats*) that tapped aquifers for irrigation and drinking water. In most instances, though, dry farming prevailed, and early Byzantine period cultivators supplemented cereal cultivation (generally barley) with extensive herding in the steppe or uplands.<sup>65</sup>

Pastoral activity, which can be difficult to detect, has rarely occupied the attention of archaeologists. Such an omission from landscape studies represents a serious gap in our knowledge that has only recently been confronted. Generally nomadic elements within the Byzantine-period population would have been confined to the margins for much of the year, as the presence of their massive flocks would have wrought irreparable harm to standing crops. As the early Byzantine population increased, the inhabitants sought new farmlands. Thus cultivation crept farther into less desirable, peripheral landscapes generally reserved for pastoralists. The limestone hills overlooking the Euphrates and the Amuq preserve traces of livestock pens and encampments dating to the fourth–seventh centuries. In the villages and hill country around Antioch, the restricted landscape and tightly packed villages naturally limited the activities of the nomadic elements among the populations. In contrast the Jazira, with its open range and less tightly bound settlement, made an ideal home for herders; we hear of the Ghassānids and Lakhmids quarreling over grazing in upper Mesopotamia during the drought around 539.<sup>66</sup>

The extensive steppe lands of the Jazira share critical features with the Anatolian plateau: low precipitation, open country, and hot summers. Most of former Galatia, Phrygia, and Cappadocia annually receive less than 300 mm of precipitation, while the treeless landscape and challenging environmental conditions rendered

<sup>65</sup> (Zone of uncertainty) T. Wilkinson, “Settlement and Land Use in the Zone of Uncertainty in Upper Mesopotamia,” in *Rainfall and Agriculture in Northern Mesopotamia*, ed. R. Jas (Leiden, 2000), 3–35; (trade) C. Morrisson and J.-P. Sodini, “The Sixth-Century Economy,” in *The Economic History of Byzantium*, vol. 1, ed. A. Laiou (Washington D.C., 2002), 206–12; (*qanats*) R. Jaubert and F. Debaine, “Des

fermes byzantines aux palais omayyades, ou l’ingénieuse mise en valeur des plaines steppiques de Chalcidique,” in *Aux origines de l’archéologie aérienne (A. Poidebard 1875–1955)*, ed. L. Nordiguian and J.-F. Salles (Beirut, 2000), 109–22; B. Geyer and Y. Calvet, “Les steppes arides de la Syrie du Nord au Bronze ancien ou ‘la première conquête de l’Est’,” in *Conquête de la steppe et appropriation des terres sur les marges*

*arides du Croissant fertile*, ed. B. Geyer (Lyon, 2001), 55–68 ; see also Redford, “Archaeology” (above, n. 18).

<sup>66</sup> (Animal pens) Algaze et al., “The Chicago Euphrates Expedition,” 44; Casana, “From Alalakh to Antioch,” 419 and appendix D; (grazing dispute) Prokopios, *Persian War* 2.1, trans. H. B. Dewing (Cambridge, Mass., 1914).

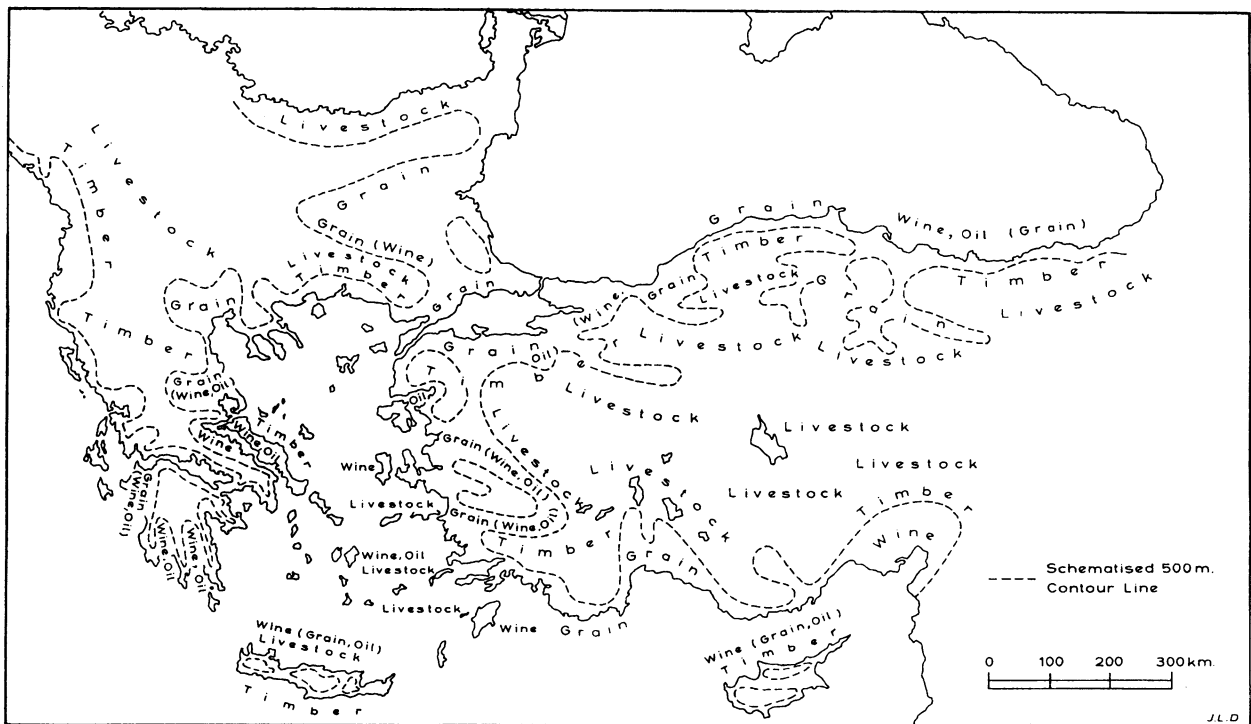


Fig. 23 Land use, Anatolia. From Hendy, *Studies in the Byzantine Economy*, map 13.

considerable areas of the Anatolian plateau more amenable to pastoralism than crop husbandry. The extremes of summer heat and winter cold and a dearth of surface water have influenced scholars to view the uplands of Turkey as a hot and cold desert, speckled with cities in a few more favored areas. Over the highlands ranged flocks of cattle great and small and, at least in Cappadocia, horses of exceptional quality. The textual sources make frequent mention of sheep, goats, cattle, horses, mules, and even camels in the Cappadocian countryside. Fortified both by modern circumstance and by texts like the early-ninth-century *Life* of Philaretos the Merciful, many have naturally viewed pastoralism as synonymous with Anatolia, a view encapsulated by Hendy's map (fig. 23), in which central Asia Minor is completely given to livestock production.<sup>67</sup> Yet the present evidence challenges the assumption that the nature of herding on the Anatolian plateau was essentially nomadic. Instead I would suggest that the early and middle Byzantine stock-raising of the plateau was similar to that of the Jazira, a region that shares important environmental characteristics with highland Anatolia.

It is necessary to make a key distinction in the kinds of stocking practiced in Anatolia. Rather than nomadism, which implied large annual or seasonal movements of herds with a mobile human population in attendance, agropastoralism lay at the heart of the plateau economy. Agropastoralism involves a blend of field cropping and

67 R. Teja, *Organización económica y social de Capadocia en el siglo IV, según los padres capadocios* (Salamanca, 1974), 29–34.

animal husbandry and differs substantially from pure nomadism, since animals are only one constituent of an interlocking set of crops and management techniques. The *Life* of Philaretos once more provides a useful departure point. The story upholds the ancient paradigm of the rich person whose wealth is tied to the land; the saint has thousands of animals fanning out over granges, but many of these are irrigated and must therefore have comprised cropland and possibly also watered pastures. Philaretos's stock was therefore managed in combination with agricultural pursuits. Under such conditions, shepherds belonging to an estate may be sent away for substantial periods of time to graze their flocks in outlying hill country or scrubland, but the enterprise remains dependent on an estate center, and the herdsmen remain under the control of villagers or estates. It is this model that I propose best depicts the prevailing Byzantine land use of the plateau. In Cappadocia the surface remains of medieval-period mangers and stock pens and underground examples in rock-cut settlements attest that much stocking activity was managed from village settlements. At Filiktepe, for example, the rock-cut settlement contained several animal pens, and similar installations are known from Rocky Cappadocia at Ovaören. Stables for caprids and equids are known from the sites of Keşlik B and Soğanlı Dere 1.<sup>68</sup>

Mixed farming in Anatolia and in Syria-Mesopotamia, where domestic crops were often produced in limited areas and under less than ideal conditions, frequently relied on animals to assist crop production and to bulk up the diet and resources of the household or estate. Depending on the species and circumstances, animals provided traction, wool, milk, meat, leather, industrial fats, bones, and manure that served as both fuel and fertilizer. Intensive farming practices held sway over the rural life of the eastern regions of Rome and Byzantium. The kernel of these high-input agrarian structures is found in what today we refer to as mixed farming: the combination of various crops, or crops and animals.

The stabling of animals in medieval Cappadocia signals that farming practice on the medieval frontier between Byzantium and Islam fits squarely with what we know to be the dominant forms of exploitation for Byzantium as a whole. Confined livestock provided an important source of fertilizer; husbandmen used grain stubble as litter, which subsequently absorbed the nitrogen-rich animal waste and rendered an important fertilizer source. The maintenance of soils, particularly the weak and often desiccated earth of the plateau, demanded assiduous care. We see these efforts in practice from the nearby Konya plain, where widespread, low-density pottery sherd scatters of the early Byzantine period represent manuring like that witnessed in Upper Mesopotamia.<sup>69</sup> Comparative evidence for a

<sup>68</sup> (Filiktepe/Ovaören) V. Castellani, "Human Underground Settlements in Cappadocia: A Topological Investigation of the Redoubt System of Göstesin (NE 20)," in G. Bertucci, R. Bixio, and M. Traverso, eds., *Le Città sotterranee della Cappadocia* (Genoa, 1995), 41–52; (Keşlik B/Soğanlı Dere 1) Cooper, *Medieval Cappadocia*, 112–15 (above, n. 41).

<sup>69</sup> (Stabled cattle) H. Beckh, ed., *Geoponica* (Leipzig, 1994), 2. 21–22; (Konya Plain) Baird, "Settlement Expansion"; (sherd scatters) Algaze et al., "The Chicago Euphrates Expedition," 44.

mixed farming regime that centered on agropastoralism is known from Gritille, a fortified hill near Samosata inhabited only from the Crusader period onward (see p. 234). The contested landscape around old Samosata (Samsat) was slow to recover from the damage suffered during the centuries of feuding between Byzantines and Muslims. When the caliphate invested in the borderlands, they directed their efforts toward Cilicia, and the creation and bolstering of the *thugur*, to the detriment of their possessions around the Euphrates.

One vestige of the accelerated land use of Byzantine farmers is present in the remains of thousands of dovecotes in the rock faces of Cappadocia. Although in the present-day western world the art of raising pigeons has largely vanished, in antiquity and the Middle Ages the practice was widespread throughout Eurasia. Indeed pigeons remain an important component of Middle Eastern farming. We may smile at the thought of a small creature like the domesticated rock dove being anything more than a curiosity, or a nuisance perhaps, but the realities of a world without an abundance of food were quite different. The pigeon represents one of the fastest-reproducing forms of protein available to humankind. Without constraints placed on their reproduction, the initial ten breeding pairs recommended by the author of the *Geoponika* (14.6.9) could have produced over 150,000 offspring in five years. Birds were used for meat; in the early Roman period Varro offered advice on aviculture and noted that, due to the flourishing urban market of Rome, bird-raising was extremely profitable. In late antiquity the price of a single pigeon could command nearly as much as a *modius* of grain.

It is uncertain whether or not birds were widely marketed in medieval Anatolia, but in many ways the meat that could be gained from the birds was a secondary consideration for Cappadocian farmers. Rather the pigeon waste was vital to agricultural life. A perennial problem for farmers of the pre-industrial era, and one frequently cited by scholars as inherent to the primitivism of agriculture in the Mediterranean world, was a lack of fertilizer. Under normal conditions, especially in naturally poor lands like those in many parts of central and eastern Anatolia, soil fertility would quickly decline. Eventually yields would stabilize at a low return that would probably not satisfy subsistence requirements, let alone generate any kind of surplus. Byzantine farmers understood that the remedy for the problem of poor soil recovery and low yield was the application of pigeon waste, undoubtedly one of the most potent fertilizers of the pre-industrial age. To provide but one brief example: a relatively modest flock of 500 pigeons would, over the course of a year, provide enough nutrients for up to 5 ha of barley land. Three to four ha of grain land should have been sufficient to sustain the average family.



Fig. 24 Dovecote, Erdemli, Cappadocia

Pigeons would have met most of their feed requirements by eating the seeds of weeds and other wild plants. They thus exploited the untilled margins of the rural settlements and required almost no care on the part of the cultivators of the land.

Dovecotes (fig. 24) were widespread in Cappadocia where many were rock-cut and thus partly survive today. Demenge investigated many of the pigeon houses in this region; most he found were rather modest, housing thirty or one hundred nesting boxes, perhaps each indicative of a breeding pair of birds. Around Göreme, Demenge estimated that the fifty-seven Byzantine pigeon houses could have held 120,000–160,000 birds. More than five thousand dovecotes have been estimated to exist just in the region of Ürgüp, an area of only 500 km<sup>2</sup>.<sup>70</sup> During the tenth century this area alone might have had upward of 325,000 birds. Without consideration of any other component of the agrarian economy, these birds alone provided the means to sustain five thousand people by providing sufficient fertilizer for 3,250 ha of arable land.

Dovecotes are a somewhat neglected and enigmatic symbol of arable farming, but of a specific type. Agriculture associated with these structures would have been intensive. Although I have, for ease of analysis, demonstrated the potential of pigeon dung as a fertilizer for a subsistence crop like barley, dovecote waste in all likelihood was carefully managed and intended for valuable cash crops that were found in gardens and orchards. This practice was typical of what we know of dovecotes from the early Byzantine period, such as one discovered at Apollonia in Cyrenaica that lies adjacent to the oil press. Undoubtedly the olives that filled the press at one time were largely the product of the fertilizer that came from the columbarium. These

70 G. Demenge, "Pigeonniers et ruchers byzantins de Cappadoce," *Archeologia* 311 (1995): 45.

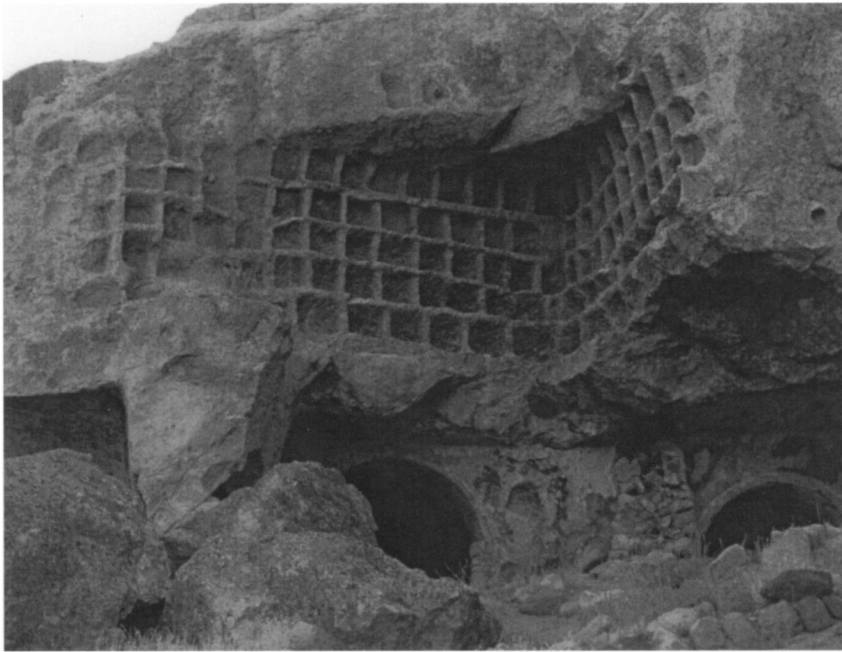


Fig. 25 Meskendir Valley runoff irrigation system. From Bixio et al., *Città sotterranee*, 281, fig. 2.

structures are therefore well suited to the broken landscape of southern Cappadocia, where the eroded landscape is fragmented and soil occurs in pockets of degraded rock. Under such conditions, pigeon waste considerably ameliorated the landscape and provided an ideal solution to the difficulties of sustaining gardens and orchards.

Pigeon houses are useful proxies in the archaeological record for settlement patterns, in that those villages with which many columbaria were once associated have vanished, while the rock-cut dovecotes remain. They are, perhaps more important, invaluable for understanding an entire landscape that remains largely enigmatic. As indicators of intensive agriculture, these dovecotes are impressive in their numbers. But there are further indicators of substantial investment in agriculture elsewhere along the frontier zone. Irrigation works are known, especially in the Meskendir valley (fig. 25). There, an impressive array of large conduits tapped into springs, the flow of which was augmented by flash floods that rushed down the seasonal watercourses that formed amid the broken hills. Within the beds of these streams, dams and terraces were constructed, a laborious process, but an effective one in the semi-arid landscapes of North Africa and the Middle East. The systems in Anatolia, while not as numerous, are



reminiscent of the late antique runoff farming installations spread throughout the Negev.<sup>71</sup> These farms obtained their water from the runoff of sudden rainstorms that collected in the gullies. The dams and weirs both diverted the flow of these violent episodes into cisterns, retarding the velocity of the water so that it percolated into the soil. Several such systems have been discovered and recorded by the Società Speleologica Italiana. Far more survey work is needed before we approach any understanding of the range, precise chronology, and frequency of these water-harvesting systems elsewhere in Anatolia. Given the climate, terrain, and the pervasiveness of such water-harvesting systems on three continents during the ancient and medieval periods, there is no doubt that central and eastern Turkey will produce many more such features.<sup>72</sup>

We have a hint of some of these finds from the letter of Harun al-Rashid to Constantine VI, which described the state of the borderlands at the cessation of the Arab-Byzantine truce:

You know well that, through the *fidya* [treaty], God accorded to each of your categories and each of your classes considerable benefit and great advantages in several areas. Among these I mention:...The fact that your laborers and artisans were quick to rework their land and repair whatever they disposed of...; they spread out in order to rebuild and innovate in agricultural methods; they abandoned the summits of the mountains and the marshes and went, in the midst of their dwellings...digging canals, planting trees, and causing springs to burst forth, in such a way that they prospered. Their situation flourished, and their mountains became fertile,...whereas today, they are prevented from cultivating their lands...they have abandoned the wheat fields, the fertile lands, and the water canals for the arid mountains.<sup>73</sup>

Archaeobotanical finds from farther west add another intriguing piece to the puzzle of the agrarian face of Anatolian settlement. At Beycesultan medieval farmers depended heavily on rye, a find that heralds a departure from the norm of Byzantine tastes, especially for the Mediterranean region, which traditionally relied on barley and wheat. Rye found few admirers in the ancient Mediterranean; it was the food of northern barbarians, and its adaptability to colder, moister environments plays out throughout the Middle Ages in northern Europe. From a palatability standpoint, rye is a poor bedfellow of wheat or even barley, but its hardiness and high yields make it a strong choice for the practical, if not the urbane. While rye must have been present in Anatolia from early times, its expansion

71 P. Mayerson, *The Ancient Agricultural Regime of Nessana and the Central Negev* (London, 1961); M. Evenari, L. Shanan, and N. Tadmor, *The Negev: The Challenge of a Desert* (Cambridge, Mass., 1982).

72 Bixio, Castellani, and Succhiarelli, *Cappadocia*, 279ff.

73 N. El-Cheikh, *Byzantium Viewed by the Arabs* (Cambridge, Mass., 2004), 92–93.

in cultivation during the Byzantine era is again striking both for the departure from Graeco-Roman tastes that it heralds as well as the adaptability of the Anatolian cultivators. With the breakdown of many Graeco-Roman urban centers with their grain markets that craved mainly wheat and barley, a natural fallback would have been rye, which competed poorly in the urban market, but is an admirable crop in regional and local economies of necessity.<sup>74</sup>

Survey, excavation, and archaeobotanical investigation at Gritille offer an important comparative case for slightly earlier Byzantine occupation of the riparian districts around Melitene and Samosata in the tenth and eleventh centuries. In the fertile Euphrates valley around Gritille, middle-Byzantine-era farmers grew a *mélange* of crops, but wheat and barley dominated, with wheat responsible for 33–68 percent of the crops produced there. Limited quantities of grapes, figs, cotton, flax, and nut crops suggest the minor role of fiber and fruit plants. Leguminous plants, such as beans and vetch, were also produced; grown in rotation with grain, these plants suggest a relatively well-managed agrarian cycle, with legumes fixing nitrogen in the soil for the grain crop that followed. Rice was also probably grown, and, like cotton, required irrigation. Basalt oil-mill components and possibly also screw weights suggest that the region produced some form of oil crops, perhaps sesame, but it is not impossible that olives were grown.

As elsewhere along the Euphrates and in the Konya plain, the sherd scatters on the river terraces around Gritille attest that the medieval inhabitants, like the late antique farmers of the region, manured their fields as part of a high-input, managed farming regimen. Manure was provided in part by a diversity of livestock. Pigs were the most common animal, and pork was a key ingredient in the diet, one clear indicator that the late medieval people living in and around Gritille remained predominantly Christian. In this part of eastern Anatolia, pigs sought provender outside of the core settlements to which they belonged and foraged over wooded and grassy areas, eating acorns and other fibrous crops. This mode of hog rearing, called *pannage*, represents a wide-ranging form of swine herding, nonintensive and best adapted to landscapes where large areas of untilled land are available close to villages.

Sheep and goats also were important to the late medieval population of Gritille. As with swine production, caprines were part of a subsistence economy rather than a more specialized economic niche, such as wool or dairy production. Herds were maintained on local resources, not sent far afield in semi-nomadic grazing forays, and the aims of their herders were to provide a steady supply of meat and maintain sufficient levels of breeding stock. Farmers kept large cattle

74 (Beycesultan) H. Haelbek, "Late Bronze Age and Early Byzantine Crops at Beycesultan," *AnatSt* 11 (1961): 77–97.

(bovines) primarily for traction; dairy production was a secondary concern, and meat was apparently simply a byproduct of the latter two concerns.<sup>75</sup>

The late medieval herding economy from Gritille reflects a landscape that I believe parallels that of the Anatolian plateau in several respects. First, the use of outfields (lands generally more than 1 km removed from the villages) and rough country was the primary form of herding, rather than mid-long-distance transhumant or other nomadic activities. Fairly small herd sizes are implied, with production aiming to maintain, not enlarge these herds. This suggests a primary crop focus of heavily worked fields, a fact corroborated by the sherd scatters indicating widespread manuring of the river terraces. In turn, the major focus on cropping suggests substantial numbers of settlements and a landscape that rendered necessary such agropastoral strategies, where animals were an important part of a system whose focus remained grain and leguminous crops.

Environmental studies at Amorium have yielded finds of cultivated barley and wheat as well as millet.<sup>76</sup> Had Leo of Synada traveled the fifty or so miles from Synada to Amorium, his hunger for wheat bread would have been sated. He also could have enjoyed a cup of the local wine: several screw-press elements have been found in the city, and these argue for surplus that would have been traded at least locally. Even more interesting is the presence at Amorium of *medicago*, a legume that may indicate a system of production known as ley farming or convertible husbandry. Ley farming enabled the production of cereal crops and animals in an efficient and intensive rotation. In this rotation cereal crops alternated with long-fallowing, in which the fields were planted with medicago. The legume served two purposes: first, to graze animals, and second, to fix precious nitrogen in the soil to restore it. While ley farming is known from the Roman period and late antiquity via the *Geoponika*, evidence for its application in Middle Byzantine Anatolia had been missing. This small detail provides a powerful reminder of how a seemingly minor piece of archaeological data can significantly enhance our knowledge.

## Conclusions

I have written in this study of two frontiers. The first is that along the Tigris-Euphrates corridor where Byzantium met Persia until the seventh century. Byzantine political control in this zone collapsed in the mid-seventh century. In and of itself, this change in political masters need not have entailed any alteration of the status quo; the farmers on the ground need not have been displaced. However, in a number of border areas, the farming population apparently relocated or suffered severe losses. The second frontier centered on Cappadocia, touched

75 G. Stein, "Medieval Pastoral Production Systems at Gritille," in Redford, *The Archaeology of the Frontier*, 181–209 (above, n. 19).

76 R. M. Harrison and Neil Christie, "Excavations at Amorium: 1992 Interim Report," *AnatSt* 43 (1993): 124–25; C. S. Lightfoot, E. A. Ivison, et al., "Amorium Excavations 1994: The Seventh Preliminary Report," *AnatSt* 45 (1995): 152–53.

the Euphrates, and trailed down to the coastlands of the northeastern Levant. The eastern landscape of this frontier from Cilicia to Melitene endured a fractious and uneven history. At present, the evidence from archaeological survey and limited excavation suggests that the population declined steeply sometime in the seventh/eighth centuries. The fall in site numbers around Samosata was precipitous. Most of the small outlying sites, evidence of the spread of the early-Byzantine-era population over the landscape, disappeared. Their return was retarded for centuries by warfare and political uncertainty. Whether those populations succumbed to pestilence, war, or other natural disasters is at the moment the subject of mere speculation. But the transition to Muslim rule was not without trauma. Given the reaction of the Aramaic-speaking communities of northern Mesopotamia, expressed sharply in the Apocalypse of pseudo-Methodius, Muslim political control visited Christian communities with sustained and memorable hardship.<sup>77</sup> One can only expect that the endemic warfare engendered by the annual jihad and Byzantine raids wrought havoc on the exposed towns and country of the upper Euphrates valley, northern Syria, and Cilicia. In the face of this danger, populations emigrated or were relocated, resources dwindled, communications were troubled, and the population of the formerly densely packed countryside shrank.

For nearly the whole of our period, the Taurus and Anti-Taurus Mountains divided the Byzantine from the Muslim worlds. This line, frequently transgressed by both Christians and Muslims, was the meeting ground of two civilizations, an arena of peaceful interaction where ideas and bloodlines were exchanged, and a zone of violence where border lords carved out reputations and estates. The pattern of settlement, far more difficult to discern than that farther east, shared certain features with the Euphrates valley. The intensive farming practices evidenced in traces of manured fields, the same encroachment into the less desirable areas, and the creation of agricultural outliers characterized late antique settlement on the plateau. But there were marked differences as well: cities were never as large or as ubiquitous on the plateau. In Justinian's day Cappadocia Prima and Secunda were, in terms of conventional Graeco-Roman cities, underdeveloped.

In late antiquity, large swathes of the eastern borderlands of the Byzantine Empire were settled more densely than in any other recorded period. In Cilicia, North Syria, and along the Euphrates, the growing population sought underexploited landscapes to convert to agriculture, and everywhere invaded marginal soils. As they pushed into the farther limits of the arable, farmers worked ever more intensively and employed a range of strategies to maintain soil fertility and thereby sustain their livelihoods. Settlement along the Euphrates, as in

77 P. Alexander, *The Byzantine Apocalyptic Tradition* (Berkeley, 1985), 36–51.

Cilicia and North Syria, was both expansive and dense, with villages, estates, and humbler farmsteads spread over a deeply worked countryside. Animals fitted into this high-input agriculture, but rangelands were increasingly restricted, and stall feeding or folding was desirable. Animals had to be restricted in their movements, to avoid damaging crops. Confinement in folds or stalls, or close herding over stubble after the grain crops were taken, rendered fertilizer accessible.

In the Jazira and elsewhere in Byzantine Syria, transhumants ranged far and wide, but they saw their grazing lands encroached upon by sedentaries who pushed into the traditional grazing lands in search of agricultural land. Although nomadic pasturelands diminished because of the increase in the farming population, such pressed conditions did not inevitably lead to conflict. The complex relationships that developed between nomad and settled populations in the pre-Islamic world cannot be explored here, but they included a range of action and reaction. Farmers tapped into the available labor force offered by nomadic groups during the harvest, and no doubt welcomed the vast flocks into grain lands where dung was desperately needed to maintain fertility. As they had done for centuries, nomads exchanged pastoral products for grain and other farm products. At other times, they raided, rustled, and kidnapped from the farms and villages of the frontier. In Byzantine Anatolia, the flocks of sheep and herds of horses that represented the mobile capital of the powerful land magnates dominated. Before the arrival of the Turks, the purely nomadic component of the population was severely restricted: the expansive estates of the Byzantine elite, with their intensive farming practices and managed herds, would have allowed little room for wandering pastoralists. We have none of the estate records of the highland magnates, but we know that, since antiquity, Cappadocia was horse country. Horses need vast areas of quality pasture and ready access to water. The pressure they exert on the countryside is substantial, their value high. The Cappadocian border lords had both the incentive and the means to tightly control their domains, and it is certainly possible that the sort of mutualism that we saw in operation in Syria and Mesopotamia was, due to the presence of large, centrally managed agropastoral estates, simply not possible in Anatolia. While we should envision large seasonal movements of herds from summer to winter pastures, most of these animals belonged not to the herds-men, but to estate owners like Philaretos.

To conclude, this work has dealt with major interlocking elements of life in the eastern frontiers of Byzantium from the seventh to the eleventh centuries: the nature of settlement based on the current archaeological data and the character of agricultural life in the frontier zones. The present data, fragmentary and incomplete though they

are, suggest that the Islamic conquests did mark a watershed moment within the settlement history of Byzantium. The populations of the Euphrates valley and the northeastern corner of the Levant fell from late antique levels that they have regained only in our day. Along the new frontier of Cilicia-Cappadocia that bordered the Muslim lands, the old late antique agricultural regime apparently survived and persisted throughout the middle Byzantine period.

The evidence has something also to say of the way that the eastern Anatolian landscape was farmed and controlled, and how the Byzantine-period inhabitants maintained and expanded their mastery over the region. It is somewhat ironic that the difficult landscape of the plateau that defined the rural world was, in many ways, conducive to the defensive agriculture needed in the face of the Muslim raids. Byzantine Anatolia did require a shift to pastoralism to create a mobile capital economy: such a regime was in place centuries before the coming of Islam. Nor did the Byzantine farmers of the medieval period abandon their lands. Arable lands were always scarce. At those infrequent points where good soil and water converged, one found settlement as well. These farming oases were both compact and dispersed. This fact was both a blessing and a curse: there was too little arable land from which to develop large urban structures without overwhelming investment in hydraulic engineering, but the smaller pockets of land lent themselves to defense and the integration of large numbers of animals, whose mobility could take advantage of the large, intervening empty spaces. Good arable has always been in short supply, no less so in medieval Cappadocia. As the population began to expand in the ninth and tenth centuries and Byzantine confidence recovered, the frontier aristocracy competed intensely and assiduously developed the landed estates that formed the only sure kernel whence their power could germinate. In this process, the Muslim invasions were not the death knell—far from it. By weakening the power of Constantinople in the provincial regions, and by forcing the emperor to give up most, if not all, of the imperial estates that had once blanketed Cappadocia, the local lords were free to wax to the fullest. Only centuries later do we find the full fruits of the tree ripen: in the rebellions of Bardas Skleros and Bardas Phokas, in the ostentation of Eustathios Maleinos. The power of these families rested on a superstructure of violence cladding a substructure of landed wealth that had been built block by block in farms and fields along the new frontier.

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